THE LIBRARY OF THE
UNIVERSITY OF
NORTH CAROLINA
AT CHAPEL HILL

THE COLLECTION OF
NORTH CAROLINIANA

C378
U02
1999
LERTZMAN, R.A.

FOR USE ONLY IN
THE NORTH CAROLINA COLLECTION

Form No. A-368, Rev. 8/95

Digitized by the Internet Archive
in 2013

http://archive.org/details/wetwildweirdimag00lert

THE WET, THE WILD AND THE WEIRD:
Imagining Pfiesteria

by
Renée Aron Lertzman

A thesis submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Arts in the Department of Communication Studies.

Chapel Hill

1999

Approved By:

Advisor: J. Robert Cox

Co-director: Ken Hillis

Reader: Dorothy Holland

Reader: Douglas Crawford-Brown

© 1999
Renée Aron Lertzman
ALL RIGHTS RESERVED

ABSTRACT
THE WET, THE WILD AND THE WEIRD:
Imagining Pfiesteria
(Under the Direction of Dr. J. Robert Cox and Dr. Kenneth Hillis.)

This thesis is an investigation into the media representations of *pfiesteria piscicida* during the period of 1995-1997, in the national and regional print media. Through identifying a dominant discourse relating to the "monster," it is my aim to explore the implications and psychic dimensions of such a discourse, and to locate the monster trope in the context of contemporary environmental threats. Drawing upon contemporary monster theory and the theoretical contributions of cultural studies, I identify three aspects of the monster – hybrid, latent, and transgressive – and engage in mapping the monster trope onto the contemporary articulations of pfiesteria as it appeared in the media in conjunction with fish kills in the Neuse River, North Carolina. Through analyzing the monster discourse as a story engaged to make sense out of this particular environmental issue, I conclude with the suggestion that as environmental communicators and scholars, we need to attend to the stories engaged in media representations as metonymic moves towards rendering the issues as coherent and understandable, and have profound political and psychic implications and consequences.

DEDICATION

This thesis is dedicated to Albert J. Mandelbaum, whose spirit of lifelong learning and celebration of the intellect and the sensual have continued to be an inspiration for me, and to Melvin Lertzman, who taught me how to look for brilliance and beauty in the words of a text or the notes of a sonata. I miss you both.

ACKNOWLEDGMENTS

This project began, as projects do, with a series of questions I have held close, questions that in their insistence have refused to go away. These questions relate to the complexity of coming to terms with a degraded and endangered world, and how we can become more able to face such complex issues with intelligence, insight, and above all else, compassion. Compassion for ourselves as humans, and for the more-than-human beings who surprise and grace us with their presence.

I feel I have been graced with the compassion of others as I have made this journey, and such individuals have provided light and insight when my own vision has been obscured by fears and uncertainty. Without this support, I honestly do not think I would have come this far, and with this support, I know I can continue to push boundaries and challenge my own limits and ask important questions.

I am grateful for the kindness and friendship of my committee members: Robbie Cox, who has demonstrated tireless patience, and has been consistently insightful and gracious. Ken Hillis has been a significant influence upon this project, in his recognition of the nuances of the project, and always able to point out new roads to explore. I thank him for introducing me to "monster theory." I wish to thank Doug Crawford-Brown for being open, kind and generous with his time and energies throughout my time here at UNC. From the first meeting I had with Doug, I felt instant rapport, and I am indebted to him for my eventual involvement with the Insitute for Environmental Studies, The Carolina Environmental Student Alliance and the Carolina Environmental Program. My friendship with Dottie Holland has been a tremendous source of support and inspiration, as our conversations allowed me to work through my ideas with an expansiveness Dottie can inspire. I am especially grateful she was able to participate in this project.

Erik Doxtader had a significant role in this project, as my course work with him instructed me in a way of thinking and being that proved invaluable. I am grateful to him for stressing the importance of staying grounded while pursing theoretical work, and to have patience with the process of close reading and apprenticing oneself to another's way of thinking.

I am extremely grateful to the University Program in Cultural Studies, for sponsoring the Nature and Culture program of 1997-1998. This program enabled me to come into contact with some of the world's foremost thinkers on nature and culture, and I cherish the conversations I had with Doreen Massey, Jennifer Daryl Slack, Jody Berland, and David Harvey. I was able to spend time with each of these individuals, and each had important impacts upon my thinking. My thanks to Della Pollock and Larry Grossberg for making that happen. I also would like to thank JoAnn Burkholder for taking the time to talk with me.

Phaedra has told me that one cannot write a thesis alone. I found this to be one hundred percent true. I am profoundly grateful to the hours Phaedra spent with me, her endless patience and willingness to pick up when I called, and a loving friendship. I also would like to thank Rachel Hall for providing support, valued input, and frequent café excursions, and Amanda for providing much needed humor and rhetorical insight. And Elaine and Timothy, who were kind, generous and added much needed perspective throughout my time here. Thank you, both.

Finally I would like to thank my family: my aunt Sandy, for being completely present for me when I needed it most and reminding me of my strength, my sister Karin for always believing in me and my parents Alan and Lynn, who have amazingly been behind me in whatever pursuits I have followed. I love you all very much.

CONTENTS

CHAPTER **Page**

I. An Introduction....1

II. Historical Narratives: Pfiesteria Happens....13

Anatomy of an Algal Bloom....13

Shaping Nature: Human Impact....16

Fish Kills With a Face: Enter, Pfiesteria....19

Nutrient Connection?....20

III. Languages of Nature: Theoretical Considerations....24

Discursive Nature....24

Monster Theses....30

Reading Through the Monster....37

IV. The Monster is Afoot: The Rise of the Pfiesteria-Monster....40

"It Looked Like the End of the World"....42

The Pfiesteria-Monster Emerges: Three Aspects....46

V. Dismembering the Monster: Conclusions and Implications....62

VI. Postscript....75

VII. Works Cited....76

CHAPTER I

An Introduction

> Invisible to both scientist and fish is the creature itself, a bizarre one-celled predator that can . . . transform from animal to plant and back again. This killer dinoflagellate . . . emerged from the murk of North Carolina's coastal estuaries, the prime suspect in a string of mass killings that destroyed more than a million fish.[1]

Pfiesteria piscicida has many names. Referred to as a "tiny killer" (Broad 1997), "cell from hell," "killer algae," (Mulvaney 1994), "ravenous eater" (Leavenworth 1997), "phantom" (Burkholder, et al. 1992), "Proteus of the Neuse" (Lambke 1996), and "toxic predator" (Broad 1997), pfiesteria entered the American public and scientific imagination as a shape-shifting boundary figure in the summer of 1995 as the most severe fish kills to date in North Carolina took place in the Neuse River Estuary. It is estimated one billion fish turned up dead and dying along twenty-five miles of the Neuse during multiple fish kills.[2]

Pfiesteria is simultaneously real, social and narrated.[3] It has become a metonym[4], from its "discovery" and naming in 1991,[5] the symbolic potentials of which have burst the forms of scientific

---

[1] Joby Warrick, "The Feeding Frenzy of a Morphing 'Cell From Hell,'" The Washington Post, 9 June 1997.

[2] Fish kills are considered to be "naturally occurring" events in periodically stratified estuaries like the Neuse; however, they can be exacerbated by increased nutrient loading (eutrophication). One of the primary factors in a fish kills is hypoxic/anoxic bottom water – low oxygen levels – which can occur in salinity stratified areas. It is also stimulated through high nitrogen levels, disrupting the flow of oxygen and plant cycles.

[3] Latour writes of the ozone hole, "[it's] too social and narrated to be truly natural; the strategy of industrial firms and heads of state is too full of chemical reactions to be reduced to power and interest; the discourse of the ecosphere is too real and too social to boil down to meaning effects. Is it our fault if the networks are simultaneously real, like nature, narrated, like discourse, and collective, like society?" Encountering environmental issues invokes this type of double-speak; the boundaries blur between the real, the social and the narrated as we struggle to name, define and respond.

discourse, spilling into public consciousness as a cunning, blood thirsty invader of the waters, spawned by the effluent of hog farms lining the Neuse Estuary. As an organic being that is said to thrive upon anthropogenic pollution, pfiesteria emerges as a hybrid figure of nature/industry, and is a convenient target for projections of fear and horror that can accompany not only contemporary environmental hazards, but taxonomically ambigious beings (Cohen 7, hereafter JC; Douglas 37).

The fish kills occasioned an explosive public debate – as seen in the hundreds of news stories, websites, public relations materials and papers published between 1995 and 1997 – regarding what it is, how it behaves, and most significantly, its relationship to the industries lining the Neuse – among scientists, environmental advocates,[6] concentrated animal operations (CAOs), realtors, fisheries, tourism constituencies, educators, state, local and national public officials, and citizens in the affected regions. Pfiesteria put a face, figuratively, on the history of industrial impact on this fragile ecosystem, and provided an anchor for the uncertainty surrounding the fish kills. Nature was going awry, and there was a "quick-change artist" behind it.[7] The media responses to pfiesteria have been marked by a combination of fear, disgust, wonder, confusion, intrigue and paralysis. It appears that the deep complexity of the issue coupled with a shifting "cell from hell" coalesced to render pfiesteria an environmental threat as protean as the organism itself, including lack of scientific consensus surrounding the causes of the fish kills and the "discovery" of pfiesteria by Burkholder and her team, pfiesteria's biology, the cultural history of the region and the politically charged space of the lower Neuse as site of industrial swine farms.[8]

---

[4] I am grateful to Professor Cox for introducing the concept of metonymy for the purposes of this project.

[5] Although named by JoAnn Burkholder in 1991, pfiesteria and similar dinoflagellates have existed for millions of years, hence its classification as a unicellular protist: "the very first ones."

[6] For example, Neuse, Tar-Pamlico, and Cape Fear watershed advocacy groups, as well as state and national river associations (American Rivers, North Carolina River Assessment, the Neuse River Bloom Project, Sea Grant, and the Neuse River Rapid Response Team are among many.)

[7] Stuart Leavenworth, "The Feeding Frenzy of a Morphing 'Cell From Hell.'" Washington Post 9 June 1997: A03.

[8] The cultural history of hog farming in North Carolina and the development of industrial farms, with unprecedented numbers of hogs, deserves its own focus of study. While I do not have space to do this rich area justice, I will assert the associations and cultural markings of hog farms are inseparable from the public perception of pfiesteria, the stories of the fish kills during the early 1990's and the political charge of this issue.

Highly complex and systemic environmental issues are rendered coherent in the news media as *stories*, providing the key elements of narrative: protagonist, conflict, heroes, and resolution.[9] There are multiple stories told about pfiesteria, most notably that of the *pfiesteria-monster.* The discursive interpretation of pfiesteria through the lens of "monster theory" (JC 3-25; Lykke 15) can reveal the cultural dimension of how an ecological issue is filtered through our senses, newsprint and narrative. In our articulations of the pfiesteria-as-monster, the symbolic aspects of this issue can be approached as maps into how and why we respond the ways we do to certain threats. It is my intention to illuminate this aspect of the recent pfiesteria/fish kills in the Neuse River as told through the imagination of a modern day monster, in the hopes of gaining access into this process of narrating threat. The monster maintains a crucial discursive function as forming a mediating body that lends familiar associations, images and meanings to unknown and unfamiliar occurrences,[10] as well as providing corporeality to the increasingly indeterminate, causally complex nature of contemporary industrial threats.[11]

The pfiesteria-as-monster illustrates that although the negative effects of industrialization upon nature have been thematized time and again over the past 150 years, contemporary industrial threats often defy categorization and escape conventions of classification, and are increasingly becoming more networked, more hybrid, and more indeterminate regarding causes and sources. As I document in Chapter Two, pfiesteria the organism and the larger issue is represents, occupies multiple spheres; plant, animal, biotic, and industrial. The issue of convention and classification,

---

[9] Framing the narrative – who gets to choose what is in the story and what is not – is what catapults media stories into the sphere of power relations and political stakes. Coherence is not only at stake but the political and economic investments of the newsworkers and media producers.

[10] As I will demonstrate in Chapter 4, the cultural repository for such stories appears to be science fiction and horror movies; *The Blob* meets *Invasion of the Body Snatchers* and *Alien.*

[11] While fish kills are arguably corporeal in their physicality – miles of bloody, dead fish and marine life – as well as the documented human health impacts in which the organism "appears" to enter the body, it remains an industrial issue in its economic and systemic complexity. The factors leading up to a hog farm lagoon spill, for example, is the accumulation of many small, particular occurrances. This issue is at once bodily and indeterminate. The body of the monster dwells at this gate of uncertainty.

treated extensively in recent hybrid theory, is central to how environmental threats evade conventions of accountability and public debate.[12]

As environmental communication scholars have suggested, public outcry surrounding environmental issues focuses on specific "emblems" or metonymic potential: issues of great symbolic potential dominating public discourses, such as the redwoods, the rainforest, the whales, and the oil fires in Kuwait (Hajer 247). Such emblems place a specificity upon a non-specific situation: each one exists in its own complicated and historically situated context. Yet the emblem stands-in, effectively, for the whole. The emblems of "red-tide," fish kill, as well as pfiesteria itself, have emerged as a primary emblems for the industrialization and degradation of the Neuse River: sites of imaginary focus. As I argue in Chapter Five, the red tide-as-emblem speaks to thematics of plague, evil nature, and industrial horror. While the human encounter with the microbial world has been documented at least since the Bible,[13] the interface of microbial threat and industrialization is more recent.[14]

The text and image of *pfiesteria* – the metonym – as depicted in the media narratives during 1995-1997 speaks to monstrosity, hybridity between industry and nature, and the uncanny.[15] With the combination of two potent symbolic representations – the red tide and the evil microbe – the

---

[12] Emergent hybrid theory, drawing upon the earlier science philosophy work of Evelyn Fox Keller, Bruno Latour, Sandra Harding and Katherine Hayles, emphasizes the rise of new forms of hybrids in our world. As Lykke and Braidotti (1996) tell us, "on the horizon, clearly defined against the post-industrial epistemological haze, emerge new, alternative and somewhat scary figurations of our present concerns. They are hybrid: monsters, goddesses and cyborgs" (248).

[13] One of the first recordings of a red-tide can be found in Exodus: "...and all the waters that were in the river were turned to blood. And the fish that were in the river died...and there was blood throughout all the land of Egypt (*Exodus 7:2-21).*

[14] As Haraway (1992) writes, "In its scientific embodiments as well as in other forms, nature is made, but not entirely by humans; it is a co-construction among humans and non-humans... we must admit to the narrative of collective life, including nature, that simultaneously turns us away from enlightenment-derived modern and postmodern premises about nature and culture (297).

[15] The psychologist Ernst Jentsch, as noted in Vidler (23) underlined a relation of the uncanny to the spatial and environmental, attributing the feeling of uncanniness to a fundamental insecurity brought about by a "lack of orientation," a sense of something new, foreign, and hostile invading an old, familiar, customary world. This is an important point and will be returned to in Chapter Five.

pfiesteria-monster resonates with the imagination of the endangered/degraded ecosystem, the post-industrial wasteland of ecological degradation, and loss of control over the processes of nature. The symbolic potential of pfiesteria indicates not only our need to conceptualize severe ecological ruptures in terms we can culturally understand, but the inclination to locate the particular issue in larger, more universal thematics[16] (Anderson 53). There is no doubt that an issue such as pfiesteria speaks to larger, more systemic problems relating to development and pollution levels in rivers and estuaries around the country.[17] As Beck (1992) has suggested, contemporary industrial hazards

> . . . unlike the factory-related or occupational hazards of the nineteenth and the first half of the twentieth centuries . . . can no longer be limited to certain localities or groups, but rather exhibit a tendency to globalization which spans production *and* reproduction as much as national borders, and in this sense brings into being *supra*-national and *non*-class-specific *global hazards* with a new type of social and political dynamism (13).

Pfiesteria's relationship with industrial practices, effluent, and pollution binds it into larger social, cultural and economic structures, extending beyond the confines of the Neuse River Estuary. Consequently, how it is treated in the mass media suggests a profound difficulty in the portrayal of such an issue in its full complexity and contextualization. It borders the realm between the mythological and the actual. [18]

I am interested in how environmental issues are understood.[19] While fish kills in the Neuse and other estuaries are material problems that exist, the narratives surrounding this problem have

---

[16] For example, apocalyptic plague, retribution, post-industrial wastelands, which are all invoked in multiple narratives concerning pfiesteria.

[17] As has been pointed out in many news stories, pfiesteria and similar dinoflagellates have appeared in coastal regions from Maryland to Oregon, as well as Japan.

[18] Brian Massumi (1996) has articulated the advent of industrial risks as an everyday phenomenon, infused into our consciousness on some level: "What society looks toward is no longer a return to the promised land but a general disaster that is already upon us, woven into the fabric of day-to-day life. Its particulars are annulled by its plurality of possible agents and times: here and to come" (11). As I will maintain and discuss more fully in Chapter Five, the fish kills exist on a continuum of contemporary industrial threats, possessing of such qualities Massumi describes.

demonized the organism in question, perhaps deflecting energies away from the context and the socio-political implications onto a fascinating and deliciously evil creature. In this thesis, I will argue that this demonization has had three significant consequences. First, it hampers our ability to see the historical context of the problem, which is crucial for understanding an ecological issue.[20] Second, it creates a problem that is unresolvable in human terms: if pfiesteria is a demon-monster, what human can fight a monster and win? (Likewise, if the monster is to be vanquished in this scenario, who is the hero? The scientist? The activist? The politician?) This construction, I argue, has a paralytic effect upon modes of agency; the structures of action[21] are not clear, and are even somewhat incoherent given the context and representations. Third, the immense symbolic potential of this issue effectively taps into public fears of microscopic threat, drawing psychic energy into the spectacle and away from re/solution; that is, eclipsing the aspects of the issue that can contextualize the problem and provide openings for necessary actions (Massumi 10).

Media relate to chronic environmental threats as short-circuiting the event, creating a "fear-blur" (Masumi 24). Given this is how many environmental issues are transmitted to the public – through the lens of the mediated reportage of newspapers, news programs and broadcast news – there is an aura of fear surrounding most ecological threats. As Paul Slovic has noted in his research, despite the efforts in industrial society to make life safer and healthier (and more materially prosperous), the public generally has become more, rather than less, concerned about risk and believe the situation is getting worse rather than better (Slovic 59). While nuclear and chemical technologies have been stigmatized by being perceived as entailing "unnaturally" great risks, the

---

[19] The term "understood" or "understanding" is used here with specific reference to Hayden White's use, as "a process of rendering the unfamiliar familiar, of removing it from the domain of things felt to be 'exotic' and unclassified into one or another domain of experience encoded adequately enough to be felt humanly useful, non-threatening, or simply known by association..." Are contemporary industrial environmental threats "unclassified experiences"? If so, how do we render them "classified"? This is a larger question that cannot be fully addressed in this project, but it is my hope this present investigation can create an opening for further inquiry.

[20] An ahistorical rendering of the issue involves acts of "virtual *legerdemain*, the active forgetting or erasure of other highly significant realities" (Adam 170) that would insist that the problem did not simply appear suddenly but evolved over the course of many years. Human and ecological histories are rarely represented simultaneously.

world of factory farming has come under the public's eye with the increase in food poisoning, viral epidemics, and waste management issues.[22]

How we *imagine*[23] our environment, and how this imagination shapes our ways of being in the world – from the activist to the polluter – is intrinsically threaded through with conceptions of value, industry, progress, and economic viability. The imagination of the threatened or endangered ecosystem or biosphere[24] figures prominently in our ability to recognize risk and to respond appropriately to a given circumstance. As contemporary industrial ecological degradation is an outcome of complex systems of human activities, perception of nature, and the human relationship to the natural world (instated by our policies and economic practices,) how degradation is made sense of and rendered coherent is intimately tied with such practices. It is seen through a filter of language, history, and tempered by semantics. It can be argued that to truly grasp contemporary ecological issues is to force a process of "industrial reflexivity,"[25] one that can result on the spectrum between modification of one's beliefs and actions, or a response of disavowal and denial.

Failure to recognize the pfiesteria-as-monster as culturally constructed, connected to a history and phenomenology of perception of threat, blinds us to the possibility of such constructions elsewhere, both negative and life-sustaining. It also escapes examination of the relationship of such constructions to agency and structures of action.[26] Acknowledging the role of human ideas and purposes in such constructions celebrates the human ability to give meaning and coherence to what

---

[21] Thank you to Dr. Dorothy Holland, who introduced me to the concept of "structures of action" in relation to environmental agency.

[22] Such rises in food poisoning include the recent episode of Ebola, BSE (Mad Cow Disease) and contamination in fruits imported from countries with poor sanitation practices.

[23] The term "imagination" as used here is engaged as a conceptual tool, to help highlight the importance of how we "come to know" and assign value to our environment: limits, threats, beauty and promise. It does not seek to undermine the actual, immediate and urgent threats to human and non-human species.

[24] A definition of biosphere is "the parts of the world in which life can exist" and "living beings together with their environment" (Merriam-Webster, 1998).

[25] Beck (1992) here is useful in relation to "industrial reflexivity" in a risk society, where the risks begin to shadow the profits and benefits of the industrial practices.

[26] I am grateful to Professor Holland for articulating agency as related to structures of action.

takes place in our world. The question is, what kind of imaginations do we wish to invoke at this time and place?

Methodology

I have chosen to base this project upon an interpretive reading of media stories. This is in part because I have come to see current understandings of advocacy and response to contemporary environmental issues as lacking insight into the relations of discourse, awareness of threat and degradation, psychic response and translations into action and reform.[27] Social scientists and environmental scholars alike seem to barely comprehend what it means to "come to terms" – not solely in terms of politics, but psychologically, socially, culturally – with environmental threats, from the abstract to the concrete, the immediate to the long-term. Our narratives of threat, fear and loss of the natural world offer important sites for investigating the process of "rendering the unfamiliar . . . the familiar" (White 5). This is a discursive approach, along the lines of White's conception of discourse as ". . . mediating between our apprehension of experience still 'strange' to us and those aspects of it which we 'understand'" (21).

We can also begin to more seriously appreciate the role of media in relationship to the social and political aspects of the issue. As Beck (1992) points out, because risks are defined through their existence upon the knowledge we have about them, they can be "changed, magnified, dramatized, or minimized" and are thus "particularly open to social definition and construction" (23). The mass media, in addition to the scientific and legal professors, are often "in charge of defining risks, becoming key social and political positions" (24). In media, the scientific becomes inherently cultural and political, and such distinctions blur. The mass media as well often take on a role as

---

[27] While this appear to be a major claim to be making, it has been my experience, along with Toby Smith's perception, that "it is time for environmentalists to take the symbolic seriously and understand the power of its tenacity. There is a cacophony of information out there from all different points of view regarding the environmental crisis. . . The challenge for the ordinary individual bombarded by this confusion of information and explanations is not to sort out the true from the false, but to put together a credible understanding at the level of *common sense*." This moves towards understanding, in my view, is connected to the awareness of how the historical faith in the omnipotence is open to question, and how this discourse is being challenged by its own dystopian shadow (5). This is the gap, the psychic coming-to-terms, I would like to see environmental scholars address.

social theorists, as Adam argues, as they are saddled with the task of producing knowledge about the environmental issue in ways that not only fit their constraints of the discourse (i.e. "hard" and "soft" news) but also in terms of framing the issue (164-165).

It is time to denaturalize and deconstruct the pfiesteria-monster as it is represented in the mass media. It is my intention to articulate a certain set of social interpretive categories that remain possibilities for us in engaging the wider range of cultural moments, in which environment is seen as threatened, endangered, or under attack. My interest, then, is in a hermeneutics of the monster: how the story of the pfiesteria-monster appeared, what it looked like, and what it can tell us about ourselves. As Barbara Herrnstein-Smith (1991) has written, "The hermeneutic circle does not permit access or escape to an uninterrupted reality; but we do not [have to] keep going around in the same path" (137-138).

My investigation into representations of pfiesteria is one of how nature/culture are embedded within one another; not to negate the biological reality of the organism, or to contest its causalities related to fish kills. Pfiesteria, as with other organic beings, *exists*. We perceive it only through our human senses, refer to it by our names we have given it, and employ it to tell our own stories, but it also has an existence outside that which we *grant* it.[28] Failure to appreciate the dynamic, autonomous role of nonhuman features and phenomena promotes the illusion that humans can construct and control everything (Sprin, 1995:112). It is my hope that a recognition of our imaginative role prompts an understanding of how malleable and profoundly cultural our languages of nature are.

The primary interpretive lens through which I will be reading pfiesteria narratives will be through that of the "monster." I have found the cultural and literary theoretical work surrounding the imagination of the monster to be highly insightful for this discussion, as an entrance into the imagery and stories generated about this issue. The monster as cultural construct has existed in literary, scientific and popular imaginations; now its time to watch the monster appear in environmental discourse. Pfiesteria has been demonized and articulated as monster predominantly in the popular

---

[28] Haraway (1992) writes, "The actors are not all 'us.' if the world exists for us as 'nature,' this designates a kind of relationship, an achievement among many actors, not all of them human, not all of them organic, not all of them technological. In its scientific embodiments as well as in other forms, nature is made, but not entirely by humans; it is a co-construction among humans and non-humans" (297).

press: for example, the Raleigh *News and Observer*, the *New York Times*, the *Washington Post*, the Baltimore *Sun*, internationally and in numerous smaller regional papers in the southeast United States (the *Tampa Tribune*, New Bern *Star*, and the Charlotte *Herald*). The text of the media narratives I will be exploring in relation to pfiesteria signify both realms of the actual and the imaginary: the pfiesteria-monster tells us as much about ourselves as it does about the organism.

Delimitations

As contributions to media studies have demonstrated, it is far too simplistic to suppose that the audience of media texts can be viewed as a homogeneous mass who passively accept the dominant ideology. Fiske states, for example, that

> [popular] text can only be popular if it is open enough to admit a range of negotiated readings through which various social groups can find meaningful articulations of their own relationships to the dominant ideology....Any....text must, then be polysemic to a certain extent, for the structured heterogeneity of the audience requires a corresponding structured heterogeneity of meanings in the text (298).

Media texts are often pre-structured with an implicit or explicit "preferred meaning," and power holders in society do their best to ensure that texts are encoded in particular ways (Anderson 195). This project proceeds in full awareness of the partiality and political codes that are at work in the interpretation of texts.

My concern for stories stems from my assumption that our articulations are what shape our actions, behaviors, and policy formations. We tell stories as a way of making sense of the world and rendering events as meaningful. Our stories are also about negotiating the reflexivity regarding our beliefs, values, practices and institutions, that are attendant to a consciousness of degradation. This consciousness is not only about ecological systems, but industrialization, conceptions of how humans are to live in relation with nature, and the murky boundaries between. Environmental perception demands our attention as communicators and educators, scholars and academics, for the sheer fact that we cannot hope to find constructive modes of response without understanding the psychic implications of such threats. With a deeper understanding of how we respond to threat – particularly chronic environmental threat, where a particular species, ecosystem or resource is

endangered and potentially beyond reparation – we can discover how we can best facilitate and support psychic responses to threat that can lead to true reparation.

I cannot assume to know or have access to "the full story" of pfiesteria and the fish kills. In this regard, this project is partial and by nature incomplete. Through leaving out many stories and accounts, I do not intend to erase or negate the full range of voices and perspectives relating this complex issue. For example, I chose not to focus upon the responses of the fishing industry, or hog farming industry specifically: this would be another study, and one worth undertaking. My interest is in how the issue became translated as one of a monster, and what the monster can tell us about environmental fears. The full range of responses, monsterous and otherwise, is far too complex and rich of an issue to do justice to in a project of this scale. Additionally, the discourse of the monster is extremely rich and multifaceted, and I have drawn from it what has been useful and illuminating for the start of such an investigation. It is my hope this necessary partiality is borne in mind as the aspect of a much larger project.

The structure of the paper is as follows. The second chapter is a history of the North Carolina pfiesteria outbreaks between 1995-1997. This will include a brief history of industrial development along the Neuse River from 1983 to 1995, and focuses primarily upon the ecological aspects of the issue. Chapter Three maps the theoretical underpinnings through which I am approaching this issue: a discursive approach to a contemporary environmental issue, drawing upon the work of Jeffrey Cohen, Georges Canguilhem, and following the paths forged in environmental cultural studies. In particular I am interested in the relation between abjection and incoherence and the occasion of a "monster." In Chapter Four, I will retell the stories of pfiesteria as an icon of modern hybridity and monstrous mediation in response to chronic ecological degradation. This will be done through a survey of select local and national print media produced from 1995 through 1997, based primarily upon print media and websites produced in North Carolina. Chapter Five will discuss how such narratives are implicated in terms of psychic response; the mechanisms of narrative and the construction of the pfiesteria-monster. The project will then pose the question as to what is at stake in the making of the monster, and the need for discursive-oriented environmental communications.

As a fluid hybrid figure between the worlds of science, industry, humankind and nature, the pfiesteria-monster has a history that is as political as it is biological. While garnering the title of an

"ancient" organism dating back to the beginnings of life on the planet, it has generated a new history in the wake of its discovery in the Neuse and Chesapeake Bay estuaries. What follows is a brief sketch of the Neuse River Estuary's ecological systems, human impacts upon the region, and the appearance of pfiesteria in the context of the 1995 fish kills.

CHAPTER II

Historical Narrative: Pfiesteria Happens

There is not one history of pfiesteria blooms in North Carolina, but a collection of *histories*—of the human impact upon the affected region, of estuaries and their ecology, and regulatory measures to delimit our impact upon the region. What follows is a brief overview of the pfiesteria story in North Carolina, beginning in the late 1980's and extending into the 1990's. I have chosen to emphasize the ecological aspect of the story, rather than the details of the political actions, and the debates within the scientific community.

Anatomy of an Algal Bloom

The Neuse River is a major tributary of North Carolina's Albemarle-Pamlico Sound Estuarine System (see Fig. 2). Estuaries are habitats providing dynamic nutrient transformation zones at the interface between freshwater and marine environments; intense biogeochemical processing enables estuaries to filter watershed-derived natural and anthropogenic nutrients and toxic substances (Paerl 1998, Kennedy 1986). Estuaries provide an important buffering function in the flows between watersheds and coastal and oceanic waters. Highly fragile ecosystems, estuaries are driven by freshwater discharge, allowing for density gradient stratification, essential for the mixing and oxygen exchange with the atmosphere.

There are ecological factors involved in the fish kills in addition to industrial and human impact.[29] As in some coastal estuaries -- shallow basins where saltwater meets freshwater -- the Neuse's water circulation is controlled by winds more than tides (Leavenworth 1997). During summer months, when winds die down, the water separates into layers -- saltwater on the bottom,

freshwater on top -- a predicament referred to as stratification, that helps deplete oxygen out of the water. Because of these natural conditions, scientists believe the Neuse and other such waters probably have always suffered from seasonal bouts of fish kills (Paerl 1998). Fish kills can be caused by internal conditions, such as low oxygen levels due to warm temperatures and increased rainfall, or external conditions, such as what is referred to as "nutrient loading." Nutrient loading refers in this context to the non-point dumping or spilling of N – nitrogen. Expanding nitrogen inputs from agriculture, proliferating livestock and poultry operations, and coastal urbanization have led to a near doubling of nitrogen loading in the past ten years (Pearl, Pinckney 21).

Nutrients enter the Neuse Estuary through multiple points: riverine, atmospheric, and groundwater sources (Paerl 297). The sources of nitrogen range from atmosphere emissions of fossil fuel combustion, wastewater treatment plants, industrial and municipal discharges, and the volatilization of NH from animal waste. The connection between nitrogen loading and algal growth lies in the increase in algal production -- or *eutrophication* – a result of high nitrogen-loading. High nitrogen-loading supports massive blooms of free-floating microscopic algal communities – phytoplankton (Paerl 298).

While phytoplankton in estuary waters are exposed to a wide range of nitrogen compounds, certain phytoplankton species, such as pfiesteria, exhibit different growth responses to specific amounts and types of nitrogen sources (e.g., ammonium, nitrate, dissolved oxygen nitrogen). Species-specific responses to nitrogenous compounds may determine the composition of naturally occurring algal communities, and thereby mediate blooms (Paerl 299-300).

An algal bloom is an elevated growth of one or more species of algae which, according to the North Carolina State University Neuse River Rapid Response Team, may result from excessive nutrient loading, in combination with adequate light, temperature and other environmental factors.[30] It is argued by marine scientists such as Paerl, that in periodically stratified estuaries like the Neuse, fish kills are natural events[31] -- that is, they would occur even without anthropogenic substances and

---

[29] I am greatly indebted to Hans Paerl, at the Institute for Marine Sciences, UNC-CH, for my understandings of the complexities of estuary ecosystems, the relationship between nutrient loading and ecological factors, and the ability to see this issue in a broader scope than afforded by media stories.

[30] Information from the North Carolina State University Neuse River Response Team's website, http://www.enr.state.nc.us/ENR/neuse/.

human intervention. Paerl cites the recent Hurricane Fran (1996) as an example of a natural event resulting in significant fish kills. However, fish kills can be exacerbated by increased nutrient loading, and the species of phytoplankton responsive to such nutrients can be more toxic, or harmful than others (i.e. pfiesteria's predatory behavior towards fish, resulting in large fish kills in excess of 50,000 fish) (Paerl 1998).

There were several industrial and ecological factors contributing to the massive fish kills of 1995. In 1995, several large rainfall events washed massive amounts of effluent from large-scale hog farms into the New, Neuse and Pamlico River estuaries (Paerl 1998) This was combined with hot and calm weather conditions in the summer, encouraging stagnation, vertical stratification, and the formation of strong salt wedges: all conditions that encourage the reduction of oxygen necessary to keep algae from accumulating. Beginning in the late summer of 1995, several fish kills appeared in the Neuse River, resulting in approximately twelve incidents and millions of dead fish. In July, scientists were measuring some of the lowest oxygen levels ever recorded along an 18-mile section of the Neuse below New Bern. The first major kill struck near Minnesott Beach in August, when about 100,000 menhaden -- small, inedible fish that travel in huge schools -- started washing ashore (Burkholder, et al. 1997, 1461). In September and October, dead and dying fish began surfacing in a 35-square-mile stretch of the Neuse, starting at the Comfort Inn in New Bern and stretching down to Camp Don Lee.

The fish kills occurred along the Neuse Basin, taking place in tributaries such as Goose Creek, (a Pamlico County waterway that flows into the Neuse below New Bern,) the Trent River and the Black River, a tributary of Cape Fear. In 1995, the Neuse River Basin was hit by eight major kills, including an autumn finale in October that killed at least 14 million fish. As Paerl, et al. report,

> In contrast to the relatively dry summer conditions of 1994, several large rainfall events and elevated runoff occurred in the spring and summer of 1995, supporting multiple phytoplankton blooms that persisted throughout summer and fall months.... While rainfall was abundant during the summer of 1995, discharge and flushing associated with runoff was not high enough to destratify vertical salinity gradients and flush phytoplankton out of the

[31] As Paerl and others have noted, oxygen levels are crucial to the formation of conditions favorable for algal blooms. Oxygen levels can be disrupted in a shallow estuary such as the Neuse in the event of high rainfall and warm temperatures, and calm weather that encourages stagnation, vertical stratification, and the formation of strong salt wedges. These factors create traps for decaying organic material and reduce oxygen exchange with the atmosphere. The conditions of hypoxia – low oxygen levels – and apoxia – no detectable oxygen – are often used to gauge pfiesteria-favorable conditions. (Paerl, personal communication, 1999).

> estuary. The result of large pulses of nutrient input associated with elevated runoff was a series of bloom events overlying the salt wedge...*The sequence of events linking pulses of N loading to phytoplankton blooms, hypoxia, and fish kills in summer 1995 occurred over weeks to several months* (23).

The fish kills also coincided with the incidence of a major Onslow County hog waste spill, releasing 25.8 million gallons of raw effluent into the New River (Burkholder, et al. 1452).

Shaping Nature: Human Impacts

The Neuse River Estuary drains one of North Carolina's most productive and rapidly growing urban, industrial, and agricultural watersheds. The total nitrogen load (N) has increased by at least 30% over the past two decades (Paerl, et al. 18). Within this timeframe, the Neuse River Estuary has experienced increased symptoms of water quality degradation, measured in levels of oxygen and nitrogen, number of fish kills, algal growth and water stagnation. In 1983, in the Upper Neuse River watershed, the construction of Falls Lake dam was completed and the U.S. Army Corps of Engineers began filling the 12,490-acre reservoir. Falls Lake then became Raleigh's drinking water source and the starting point for the Neuse River; however, the new reservoir helped trap pollutants from Durham that would otherwise flow down the Neuse. The dam also reduced the flow of the river, increasing the impact of pollutants released from Raleigh and farms and cities downstream.[32]

Also in 1983, the North Carolina Division of Environmental Management reported that since the 1970s, concentrations of algae in the Neuse had doubled, and nitrogen pollution had increased by 60 percent (Leavenworth and Warrick 1996). The report called for *voluntary* measures to reduce nitrogen from farms and cities. This marked the first governmental recognition of the rising nitrogen levels in the Neuse, and that algae concentrations continued to violate state standards. In 1987, the state declared the Neuse to be "nutrient sensitive" -- acknowledging that there was too much nitrogen and phosphorus in the river -- but the state report focused on phosphorus, as it is relatively cheap to remove from sewage. A state ban on phosphates in detergents in 1988 cuts phosphorus levels in

---

[32] The industrial history of the region is largely drawn from the [Raleigh] News & Observer series, "Sold Down the River," by Stuart Leavenworth and Joby Warrick, between March 3-12.

lakes and creeks, although nitrogen from sewage plants and farms increasingly has become the main cause of algae and fish kills downstream (Leavenworth, Warrick 1996).

Since 1970, the population in the Neuse sub-basin area, twenty-one miles from New Bern to Pamlico Sound, has grown an estimated 74 percent. Since 1950 there has been a 650 percent increase in the amount of waste water being discharged into the Neuse River watershed, the most significant sources being runoff from agriculture and human waste-water treatment plants (Paerl, 1998:18). The primary sources of pollution into the Neuse watershed are wastewater treatment plants, agriculture, and air pollution. Considered one of the most industrialized watersheds in the United States, the Neuse was given the distinction of being "one of the 20 most threatened rivers in the U.S."[33] Each day, the surrounding sewage plants and industries release about 54 million gallons of treated wastewater into the Neuse -- one third the total for the entire basin. Raleigh owns the largest treatment plant: it releases 29 million gallons and more than a ton of nitrogen and phosphorus each day. In addition to wastewater, agriculture and forestry account for about 70 percent of the nutrient runoff in the Neuse. Cities and housing developments, ever growing, add to the problem with lawn fertilizers and septic tanks. A 1992 study estimated that 660 tons of nitrogen runoff entered the river each year from the Crabtree and Walnut creek basins. About 600,000 motor vehicles are registered in the Triangle, releasing nitrogen oxides which rise to the atmosphere and fall to the watershed in rain; about 10 to 20 percent of the Neuse's nutrient runoff comes from air pollution.[34]

Additionally, in the last decade North Carolina jumped from seventh place to just behind number-one Iowa in the production of hogs, seen by some as the replacement for tobacco. Huge industrial farms sprawling across the coastal plain contain seven million pigs excreting as much urine and feces in one day as a city of twenty million people. The Jacksonville *Daily News* in Onslow County reported that Duplin County alone, which has a human population of 40,000, produced 1.04 million hogs in 1993, a 265 percent jump in just four years (Leavenworth and Warrick 1996). The hogs, in turn, produced 1.7 million tons of excrement. That is in addition to the excrement produced by the county's 26.7 million chickens and 22.5 million turkeys. This places the

---

[33] American Rivers Foundation website, <http://www.americanrivers.org> 1 February 1999.

industrial agricultural operations squarely in the limelight for impacting the ecology of the Neuse watershed profoundly.

In 1992, the state Environmental Management Commission adopted new regulations for large livestock operations. The rules constituted a big change from the old "all-volunteer" guidelines, but for the most part farms continued to operate under a kind of honor system: they were asked to comply but the regulations were not enforced. Under pressure from farmers, the state dropped a proposal to ban waste-spraying near ditches. While most farms complied with the rules (with minimal enforcement), some farms ignored them altogether. After a rash of waste spills in the summer of 1995, state inspectors flagged hundreds of hog and poultry farms for problems such as overflowing lagoons and illegal discharge pipes.

Starting in 1993, a six-year, $11 million study of the Albemarle-Pamlico estuary produced the first comprehensive plan for managing water quality in the region. But, facing fierce opposition from local governments and farmers, the APES council dropped a proposal that would have required landowners to preserve a corridor of trees along rivers and streams, and the APES study was denounced by environmentalists as yet another paper study with limited means for improving water quality. Nitrogen and other pollutants that prompted the study continued to flow into Neuse. The lack of buffers on streams allowed farm wastes and pesticides to wash into the water unhindered, and in the case of high rainfall, resulted in lowered oxygen levels.

In 1994, Governor Jim Hunt appointed a 15-member group as the state Coastal Futures Committee, which blamed a lack of accountability for many of the coast's pollution problems. Its final report stated, "Water quality protection programs are fragmented among regulatory agencies, thereby hindering a comprehensive approach" (Leavenworth and Warrick 1996). This observation reflected a divided responsibility for reducing polluted runoff among more than a dozen state and regional agencies. The Hunt administration appointed another committee to consider reorganizing the state's water programs.

Fish Kills With a Face: Enter, Pfiesteria

[34] Neuse River Basinwide Management Plan, 1993; Watershed Planning in the Albemarle-Pamlico Estuarine System, 1992.

Although pfiesteria piscicida has probably been around for millions of years —dinoflagellates originated 450 to 600 million years ago -- knowledge of its existence came about only in the late 1980's (although it was not officially "named" until 1991), when scientists at North Carolina State University encountered it in their work in the Pamlico Estuary. In the summer of 1988, Edward J. Noga, a fish pathologist at the College of Veterinary Medicine at North Carolina State, and Stephen Smith, a graduate student, collected brackish water and some fish (juvenile menhaden and flounder) from the Pamlico estuary for pathology experiments. In their laboratory they discovered an unidentified organism causing the deathes of the fish they were studying (Boyle 16). In the winter of 1989, after a number of algal specialists had rejected their request for help in identifying the dinoflagellate, Noga and Smith approached Dr. JoAnn Burkholder, an aquatic ecologist and associate professor at North Carolina State University. As Burkholder recounts,

> They told me this strange story about how it seemed to be attacking fish. I had never heard of a dinoflagellate doing this. . . My background was in fresh water, I had done a lot with algae, and I knew about dinoflagellates, but I had never worked with them. Identification requires a lot of extremely fine tuning with a scanning electron microscope and a transmission electron microscope . . . One little canal, the canal that's in the center of the cell, can contain up to seventy plates, and you have to obtain the number, the exact shape, configuration, and arrangement of the plates to say what species it is. I am an ecologist, not a taxonomist. There was no way! (Boyle 16)

Burkholder agreed that she would study the ecology of the dinoflagellate and send cultures and preserved specimens for identification to an acknowledged authority in the field, Karen A. Steidinger, of the Florida Marine Research Institute in St. Petersburg. Initially the Institute scientists were skeptical that such a fish-killing dinoflagellate existed; then they said they found it impossible to culture the organism. Burkholder continued work on the dinoflagellate at North Carolina State University.

In October of 1991, Burkholder, only days away from giving a report on pfiesteria at the Fifth International Conference on Toxic Marine Phytoplankton, showed Steidinger good scanning electron micrographs, demonstrating features of the organism.[35] Steidinger eventually identified the

dinoflagellate as a new species in a new genus representing a new family. The original species name was *piscimortis*, "fishdeath," was supplanted by the more vigorous name *piscicida*: fishkiller. As stated above, pfiesteria belongs neither to the animal kingdom or the plant kingdom; it is of the Prokaryote kingdom, one-celled organisms *like* bacteria that lack a nucleus.[36] Pfiesteria dwells, with other dinoflagellates, in the Protista kingdom, the "Very First Ones," a kingdom that includes diatoms, phytoplankton, simple algae, and slime molds (Lambke). Pfiesteria represents a new family, genus and species of armored dinoflagellate (Burkholder, Glasgow, Hobbs 43).

Dinoflagellate etymologically translates as "whirling whips" and describes the threadlike filaments, usually two, that propel the organism through the water. Ranging in size from 10 to 400 micrometers, it looks like an amoeba in one-third of its stages and a cyst in several others, with at least 24 life cycles (see Fig. 3). In its predatory stage, it becomes a two-tailed dinoflagellate, releasing a neurotoxin that paralyzes or disorients the fish before it feeds on the sloughing flesh. As Burkholder describes it, pfiesteria uses something called a peduncle, a little organelle that comes out from the front of the cell. First the peduncle looks tongue-like, but after a while it becomes very large and develops cytoplasm extensions. The dying fish also cause the dinoflagellates, which live only from twenty-four to thirty-six hours, to produce gametes, initiating sexual reproduction. They then swiftly shift back into amoebas, and drop back down into the sediment as cysts. This is one primary reason why the relationship of pfiesteria and fish kills is so difficult to track: by the time the symptoms have appeared (dead and dying fish and marine life with sores), the causal agent has become difficult to detect in its cyst form.

Between October of 1991 and 1993, Burkholder linked pfiesteria to eighteen fish kills that occurred in the Neuse and Pamlico Rivers, which empty into Albemarle-Pamlico Sound, the second largest estuary on the United States mainland. Seventy-five percent of the kills occurred in nutrient-enriched waters, some badly polluted. Killed were Atlantic menhaden, southern flounder, spot, hogchoker, white perch, catfish, striped mullet, striped bass, blue crab, American eel, sheepshead,

---

[35] As reflected in many narrative accounts by Burkholder, the obtaining of microscopy imaging – to catch pfiesteria shifting from amoba to filipodal, to lobose amoba, to zoospore, etc, *on film* – was crucial towards reaching any form of scientific consensus for her claims of pfiesteria as a new form of dinoflagellate.

[36] Other Prokaryotes include the Protista, one-celled and other microscopic organisms with a nucleus; and Fungi, from shiitakes to the causative agents of athlete's foot (Lembke:1997).

and Atlantic croaker. The biggest kill between 1991 and 1993 occurred in the Neuse in the fall of 1991 when an estimated one billion Atlantic menhaden died and had to be bulldozed off the beach.

Nutrient Connection?

With the advent of fish kills in the summer and fall of 1995 in the Neuse, Burkholder publicly maintained the causal link between hog farm run-off and the rise of fish kills through extensive interviews with journalists, in addition to published scientific papers and appeals for funding. A split emerged in the marine sciences community between those who were "hog-farm causality" supporters and those who were not. This likely stems from the history of fish kills as involving multiple factors, including extreme low levels of oxygen, which is considered part of estuary ecology, as a result of stratification. In addition, many scientists claimed her methods were flawed, she had personal investment in getting funding, and was highly adversarial.[37] The struggle over scientific consensus regarding what pfiesteria is, its relationship to effluent and nitrogen, and its human health risk continued for the next several years, reflected in such publications as an open letter to Governor Hunt, signed by twenty marine scientists from Duke University, East Carolina University, University of North Carolina, the Institute for Marine Sciences, and North Carolina State University.[38] What followed the fish kills in 1995 was an intense public debate, taking place in local papers in Eastern North Carolina (Wilmington's *Morning Star*, The Jacksonville *Daily News*, The New Bern *Herald Star* and Raleigh's *News and Observer*) surrounding Burkholder's work, fights over funding for particular labs studying pfiesteria, the claim that she wanted total control over pfiesteria research, and the profound uncertainty regarding human health affects.

Prior to the massive fish kills of September, 1995 in the Neuse River, Burkholder and her assistants followed a spill of hog waste down the New River (thirty-five miles south of the Neuse) in June 1995.[39] Testing bottom sediments seventeen miles downstream from the spill site in September,

---

[37] As one anonymous UNC scientist remarked to me, "well, she has feathered her nest pretty well with this whole thing."

[38] Christian, Dr. Bob, et al. Letter to Governor James B. Hunt, Jr. 5 October 1996.

[39] Buried in the text of one news article about the fish kills was this reference: "In Wilmington, meanwhile, a researcher said that the remnants of the 25 million gallons of hog waste that spilled into the New River three months ago have settled into the river bottom and continue to dangerously pollute the waterway

they found scientifically "unsafe" fecal coliform levels as high as 160,000 colony-forming units per 100 milliliters of water in the top centimeter of sediment, as well as pfiesteria (Burkholder et al. 1453). In response to the spill, state and Onslow County officials held a public meeting in Jacksonville in October. Michael Moser, director of the state's Division of Epidemiology dismissed the idea that there was a known link between sediment bacteria levels and human health hazards, while Preston Howard, director of the state's Division of Environmental Management, said his department will not sample the sediment. It is said that Commissioner Sam Hewitt then asked the state officials to silence Burkholder and other scientists because "it affects the economic and tourism trade" (Boyle 4). On October 5, 1995, Jonathan Howes, then secretary of the Department of Environmental Health and Natural Resources, went on-site in New Bern and toured the river, in the aftermath of a fish kill. Howes, and overruling health director Dr. Ron Levine, issued a health warning urging people not to swim, fish, or boat in the fish kill zone. This declaration was an important act for those fighting for recognition from the state regarding the human health affects.

The advent of fish kills in the Neuse River Estuary, in 1995 in particular, raised public awareness of the relationship between dinoflagellates, pollution, and human impact to an unprecedented height. In total, an estimated one billion fish were killed through the toxic death of pfiesteria's neurochemicals, and the fishing industry, tourism and industry have all suffered significantly. The problem of regulating waste management and the accountability of the hog farms responsible for poor waste treatment, not to mention the inevitable spills that occur on a regular basis, is continuing to the present. The contestation regarding the relationship between pfiesteria and the fish kills in North Carolina continues to the present as well; there are many marine scientists who adamantly disagree with Burkholder's claim that the dinoflagellate is responding to the issues of animal waste and pollution.

The enormous haze of confusion and controversy surrounding this issue – from the history of pollution in the Neuse, to the scientific research on dinoflagellates, to the biological characteristics of pfiesteria – have made it difficult for me to decipher what the "real story" is on this issue. Rather than focus on that line of inquiry, I prefer to turn my attention to the ways in which this confusing

---

" Associated Press. "Neuse Fish Kill Expected to Run into Millions." News & Observer 23 September 1995.

and frightening issue has been played out in the media, and how those portrayals may offer clues into how complex environmental issues are narrated. The transference of a complicated issue such as pfiesteria and the fish kills into "copy" found on the pages of the daily newspaper or magazine is the focus of this study. In the leap from estuary to the cell from hell (coming to a watershed near you), what happens?

CHAPTER III

Languages of Nature: Theoretical Considerations

> A construct and a projection, the monster exists only to be read: the monstrum is etymologically "that which reveals," "that which warns," a glyph that seeks a heirophant. Like a letter on the page, the monster signifies something other than itself: [it] always inhabits the gap between the time of upheaval that created it and the moment into which it is received, to be born again.[40]

> In the presence of certain kinds of fish, pfiesteria drops its pseudo-plant routine and turns into a microscopic sea monster...as a dinoflagellate, it sprouts a whip-like tail, races to its prey and spews 'multiple toxins'..."[41]

Pfiesteria is often shown as a round, porous creature, with peduncles and cysts and scales coming out of its body in all directions. We can find its photo in hundreds of newspapers, magazines and journals, suspended in the world of electron microscopy, as if to be looking back at us. Pfiesteria has become a cultural body, a metonym, a sign. But of what? In this chapter, I introduce "monster theory" as a mode of reading culture in the representations of this organism. This reading is intended to elaborate a mode of approaching media texts that appear to invite the "monstrous" into our efforts to make sense of ecological degradations. This approach as well acknowledges the larger cultural context to which such representations are bound, linking into an imaginary reaching far beyond the confines of this particular issue. I begin with a discussion of the discursive detour through the nature/culture conundrum, leading into monster theory as the theoretical lens through which to understand more fully the cultural resonance of this issue.

---

[40] Jeffrey Cohen, Monster Theory: Reading Culture, (Minneapolis: U of M Press, 1996) 4.

[41] Joby Warrick, "The Feeding Frenzy of a Morphing 'Cell From Hell," Washington Post, 9 June 1997.

Discursive Nature

Approaching environmental issues discursively – asserting a powerful discursive, as well as biological component is at work – is often viewed as irresponsibly denying the existence or validity of the biotic and non-discursive. This has been the greatest challenge to any work addressing the nature-culture dialectic. By requiring an examination of the cultural values, language, and history informing our choices and actions relating to the natural world, a tension exists between the sciences and cultural studies. Kate Soper writes,

> Just as the green movement can afford to be more discriminating in its deployment of the concept of 'nature'. . . so the postmodernists should accept that the ecologists are talking about features of the world which we cannot afford to ignore. . . Much which ecologists loosely refer to as 'natural' is indeed a product of culture, both in a physical sense and in the sense that perceptions of its beauties and values are culturally shaped (26).

Perhaps the more challenging task at hand is to look at how the perceptions of environmental threats and degradation are culturally mediated and articulated. Environmental cultural theorists and historians (Cronon 1996; Schama 1995; Soper 1995; Slack 1998) who aim to unveil and render transparent our cultural conceptions of nature, must be aware of the process of how degradation is perceived and articulated, in addition to beauty and value.[42] Ecological degradation, while not a new phenomenon, occasions the need for such questions as "how do we respond to this?" and "why is this happening?" Such questions are inherently cultural as well as referring to the materially real; in threat there is the need to *respond* and to cognitively *make sense of*, and is therefore an ontological as well as an epistemological issue. Engaging a *tropological theory of discourse* – reading discourse through the invocation of a

---

[42] Simon Schama (1995) writes, "The point of Landscape and Memory is not to contest the reality of this [environmental] crisis. It is, rather, by revealing the richness, antiquity, and complexity of our landscape tradition, to show just how much we stand to lose. Instead of assuming the mutually exclusive character of Western culture and nature, I want to suggest the strength of the links that have bound them together. That

particular trope or conceptual framing device – can help us understand how we make sense of the world through certain stories and narratives.[43] Hayden White (1978) asserts

> Understanding is a process of rendering the unfamiliar... familiar; of removing it from the domain of things felt to be "exotic" and unclassified into one or another domain of experience encoded adequately enough to be felt to be humanly useful, non-threatening, or simply known by association...This process of understanding can only be tropological in nature, for what is involved in the rendering of the unfamiliar into the familiar is a troping that is generally figurative (5).

This paper follows theoretically from the perception of discourse as a product of consciousness' efforts to come to terms with problematical domains of experience (5). White's approach to tropology is salient for discussion of environmental issues from a discursive, cultural orientation, as he calls for a recognition of the move from "a metaphorical apprehension of a 'strange' and threatening' reality to a metonymic dispersion of its elements...of a given domain across a *time series* or *spatial field*" (6). Environmental issues, I would argue, *are* strange and threatening, particularly those brought about by technological practices. While ecological degradation through "natural phenomenon" may elicit an explanatory scheme based on cosmology or God, degradation at the hands of humans introduces a new form of strange and threatening reality. Radioactive contamination, ozone depletion, massive lagoon spills are just a few examples of where intended technological developments result in unforeseen, unwanted problems. This can be seen explicitly in the issue of pfiesteria and the fish kills, both of which are simultaneously "natural" and "man-made."

Adam, Smith and Beck are among a growing number of environmental theorists addressing the specificity of contemporary industrial threats in terms of their characteristics of latency, indeterminacy, time-space distantiation and general transgression of normal

---

strength is often hidden beneath layers of the commonplace...[requiring] an excavation below our conventional sight-level to recover the veins of myth and memory that lie beneath the surface" (14).

[43] In Tropics of Discourse, Hayden White (1978) writes of a tropological approach to discourse as "providing us with a way of classifying different kinds of discourse by reference to supposed 'contents' which are always identified differently by different interpreters" (21).

causality. With industrial threat, the threats often do not appear until the symptoms surface, in the form of tangible outcomes: lesions on fish, deformities, cancer rates, resource depletion. This translates into time-space distantiation: we may not see the causes of the threats until the manifestation much later in time. This distorts conventional problem-solving techniques of cause and effect, and render most industrial environmental threats as requiring new ways of thinking and perceiving.

Metonymic apprehension of environmental pollution and degradation as a strategic mode of interpreting environmental threat is the subtext of my thesis, and my use of the term *metonym* is draws upon Burke's definition:

> The basic "strategy" in metonymy is this: to convey some incorporeal or intangible state in terms of the corporeal or tangible. Language develops by metaphorical extension, in borrowing words from the realm of the incorporeal, invisible, intangible; then in the course of time, the original corporeal reference is forgotten, and only the incorporeal, metaphorical extension survives . . . this "archaizing" device we call "metonymy (506).

In this regard, the metonym can be seen as device of orientation and location, the move from chaos to order through an existing cultural or metonymic framework. The metonym of the monster can offer a context, a suture for fragmentation and partiality, and a psychic buffer for transgressive or threatening experience or perceptions. It works syntagmatically; we construct the rest of the "story" from the part that we have been given. The metonym, however, as John Fiske (1994) points out, works invisibly: it seems so natural that it is easily taken for granted, and we fail to realize that another metonym might give a very different picture of the same whole (182).

There can be no adequate engagement with the question of what nature is and the perception of ecological risk, that fails to address the ways it is spoken of and represented in cultural discourse and imagery (Soper 71), and the various tropes invoked in environmental perception. To attend to this symbolic dimension is to be struck immediately by the diversity and complexity of our descriptions and tropes of nature.[44] Nature is at once machine and

organism, passive material and vital agent. It is dangerous and sacred, polluted and wholesome, lewd and innocent, carnal and pure, chaotic and ordered.

> To explore. . . human projections upon nature is to attend to the humanity-nature distinction as a site of equivocation wherein we can read a narrative of human self-doubts, not only about our use of nature conceived as a clearly delineated "other", but also about where to draw the line between ourselves and this "other" . . . (Soper 72).

More often than not, our ways of seeing and interpreting nature and our relationship with it, is "naturalized" in its invisibility and taken-for-grantedness. Attending to human projections upon nature can assist in unhinging naturalized conceptual frameworks used for describing the world and the risks confronting us. This "unhinging" entails an ongoing inquiry into the metaphors, images and language we find in the discursive realm of environmental communications: the speech acts, stories, and narratives engaged to explain and interact with the world around us. It is through this investigation where one can find powerful tropes existing "beneath" a cultural consciousness, tropes connecting to larger cultural mythological formations and yet rarely invoked as sites for exploration. Nature is a *topos*, a place, in the sense of a rhetorician's place or topic for consideration of common themes; nature is, strictly, a commonplace (Haraway, hereafter DH 295). We turn to this topic to order our discourse, to compose our memory. It is also, as Haraway reminds us, a *trope*. "It is a figure, construction, artifact, movement, displacement[45]" (DH 296).

Significantly, philosophers and historians of science for the past several decades have been forging new ground in relation to the cultural dimensions of scientific discourse, which bears upon the work of environmental cultural theorists. As Raymond Williams has noted of scientific writings, "the inclusion of models, metaphors, transfers and allusions is a form of intellectual composition which needs as stringent examination as the evidence which, in

---

[44] See Raymond Williams, Keywords, (London: Fantana, 1976) for a marvelous and pithy treatment of the term "nature."

[45] In Haraway's characteristically playful prose, she writes, "Troping, we turn to nature as if to the earth, to the primal stuff – geotropic, physiotropic. Topically, we travel toward the earth, a commonplace. In discoursing on

apparently autonomous ways, is offered or interpreted" (12). This examination can extend to the media texts generated in response to particular environmental issues, and the ways texts evoke particular tropes, metaphors and framing devices in rendering an issue coherent and with a recognizable plotline or narrative structure.

Drawing upon a framework of monster theory as a way of reading the encounter with pfiesteria is suggested in this project as a rhetorical mechanism through which we can see how the issue is filtered through a cultural construct, and what meanings are assigned through this filter. Increasingly, the interpretive force of monster theory has been invoked in social and critical theory as an entrance into understanding aspects of cultural life that refer to boundary figures, hybrids, and new formations of identity.[46] It has been suggested that to read cultures from the monsters they engender can offer insights into a cultural imaginary otherwise not accessible. Braidotti notes, "Being figures of complexity, monsters lend themselves to a layering of discourses and also to a play of imagination which defies rationalistic reductions" (135).

Monster theory is highly complex and vast, with a broad history and rich literature. There are aspects of monster theory that focus upon the science and history of teratology, and the evolution of the monster-figure throughout the centuries, since antiquity.[47] This history is important for any approach to monster theory as a vehicle or lens into contemporary phenomena, and the evolution of this discourse. Correspondingly, aspects of monster theory dwell in the realm of literature and literary analysis (Mary Shelley's *Frankenstein* is the most obvious example of a heavily examined text.)

---

nature, we turn from Plato and his heliotropic son's blinding star to see something else, another kind of figure...Nature is a topic of public discourse on which much turns, even the earth" (296).

[46] Most notably, Bruno Latour (1993), addresses the proliferation of monsters of post-industrial society, as a never-ending threat to the modernist construction of "purity," and Donna Haraway's regard for the potential monsters have for creating embodied and ambiguous sites for displacing and transforming actions on many levels (1992). While Latour and Haraway have differing conceptions of the monster, each addresses the "proliferation" and "promise" of these beings, and articulate the monster as somewhat inevitable and politically salient.

[47] As Canguilhem has pointed out, the more fantastic or 'irrational' aspects of the discourse about monsters coexist simultaneously with the evolution of a science called "teratology" (1966).

Below, I offer three "monster theses,"[48] drawing primarily upon the work of Jeffrey Cohen, science philosopher Georges Canguilhem, feminist science theorists Rosi Braidotti and Nina Lykke, towards the unhinging of a naturalized embrace of the pfiesteria-monster, through the interrogation of these media depictions. For the purposes of this discussion, I have generalized three central characteristics of the monster – markers, if you will – that seem to appear across the multiple branches of teratology[49] or monster theory. These "theses" are: the monster as *boundary figure*, as *latent*, and as *transgressive*. These almost typical and commonplace qualities of the monster– the attributes of phantoms, mummies, and Frankenstein-like monsters ring most familiar with consumers of horror films, literature and science fiction – are not essentially monstrous in themselves, but they nevertheless have been seen as emblematic of the monster and resonate as the cultural signs of monstrosity for particular periods.[50] I wish to draw upon this rich theoretical discourse, as having direct bearing upon the ways we imagine and respond to our increasingly changing world, and as a frame for examining media responses to pfiesteria.

Monster Theses

1. Monster As a Boundary Figure

One of the trademarks of the monster is its function as a liminal and boundary figure. For example, Lykke summons the monster as a "metaphor to perform as a representation of

---

[48] The theses provided are drawn from Cohen's "Monster Culture (Seven Theses)" essay in his anthology Monster Theory: Reading Culture, (Minneapolis: UMP, 1996), 3-25.

[49] Teratology refers to the science of monsters.

[50] Vidler, in reading culture through the uncanny, invokes a parallel approach to reading the uncanny as necessarily ambiguous, "combining aspects of its fictional history, its psychological analysis, and its cultural manifestations." If subjects are interpreted through the lens of the uncanny, "it is not because they themselves possess uncanny properties, but rather because they act, historically or culturally, as representations of estrangement" (12). The same can be said for the monster as trope; it becomes a signifier of aspects or traits associated with such markings of monster and the attending meanings. The Architectural Uncanny. (Cambridge: MIT Press, 1992), 11.

boundary phenomena in the interdisciplinary or hybrid gray zone between the cultural and natural sciences. In this zone [as] boundary subjects and boundary objects, monsters ...challenge established borders between the sciences" (14). When monstrousness is taken seriously as a cultural discourse, the monster itself becomes "a category that is itself a kind of limit case, an extreme version of marginalization, an abjecting epistemological device basic to the mechanics of deviance construction and identity formation" (ix). Does the monster emerge when we doubt life's ability to provide us with order, as Georges Canguilhem has suggested, or does *the monster* throw doubt on our ability to trust order and normalcy?[51] Perhaps it does both at once, and back and forth and, unchecked in the imaginary, is the nexus of its fearsome power.[52]

One thing appears to be consistent about the monster: it is always a combination of elements, a hybrid of classes, types, and norms, pushing it into a new category of its own. The monster can be seen as a manifestation of what happens when the (perceived) borders collapse between that which is kept separate by classification and taxonomic boundaries. The type of "radical doubt" Canguilhem speaks of that is occasioned by the monster, is one of morphological variation.

> No matter how accustomed we have been to see honeysuckle grow on honeysuckle vines, tadpoles become frogs, mares suckle colts, and in general see like engender like. . . It is sufficient that this confidence be shaken once more by a morphological variation, a single equivocal appearance. Because we are living beings, real effects of the laws of life, and in our turn future causes of life. A failure on the part of life concerns us doubly: a failure could affect us, and we could cause a failure (27).

Or, as Cohen expresses this categorical crisis, "In the face of the monster, scientific inquiry and its ordered rationality crumble. The monstrous is a genus too large to be encapsulated in any conceptual system; the monster's existence is a rebuke to boundary and enclosure...and full of rebuke to traditional methods of organizing knowledge and human experience..." (7).

---

[51] Canguilhem (1962) writes, "The existence of monsters throws doubts on life's ability to teach us order" (27).

[52] Thanks to Professor Ken Hillis for this observation.

The issue of hybridity is perhaps seen most vividly in the bestiaries of the Middle Ages, where the monster is a combination of species, hybrids and cross-breeding.[53] A mixed category, the monster resists any classification built on hierarchy or a merely binary opposition, and demands new modes of perception and interpretation.

Cohen's claim that "we live in a time of monsters" (JC vii) highlights the specific types of anxieties produced in an era of hybridity, industrial dangers, and dissolving boundaries. This statement also draws attention to the temporality of his argument: what does it mean to "live in a *time* of monsters?" While the monster is not new, contemporary articulations of the monster offer a cultural barometer of fears and fantasies, new technologies and new dangers. Indeed, he continues, "we live in an age that has rightly given up on Unified Theory, an age when we realize that history. . . is composed of a multitude of fragments, rather than of smooth epistemological wholes." In this assertion, Cohen sees the rise of the monster as a gesture of uncertainty and fragmentation, a cultural artifact of disparities in the face of change and uncertainty.

The monster as culture in this sense refers to the emergence of a body – a recognizable entity – that exists outside the parameters of the real, in any rational, normative sense, and yet exists in a form that can be engaged from a safe distance. The monster arises in a gap of unknown consequences and combinations, whether it be technology and nature, genetics and culture, the body and the machine. The articulation of pfiesteria as monster emerges only at a specific "metaphoric" crossroads, as an embodiment of a certain cultural moment – of a time, a feeling, and a place. The monster's body quite literally incorporates fear, desire, anxiety, and fantasy. . . giving them life and an uncanny independence (JC 4). In this independence a distance opens, where we can hopefully observe the qualities and elements the monster is comprised of. In this observance, we are likely to find fragments and pieces of that which has been cast off, forbidden, and deemed as dangerous.

For Latour and Haraway, the monster is very much a part of breakdown of the "modern" – the binary pairing of nature and culture, science and society, the technical and

---

[53] T.H. White, The Bestiary: A Book of Beasts, Being a Translation From A Latin Bestiary of the Twelfth

the social. In this breakdown emerge "actors/actants of many wonderful kinds" (DH 330). In this opening the monster is seen as a figure reflecting the hybridity of technological and industrial culture, the fluidity of boundaries and new possibilities for agency. Wisely, the monster has been increasingly seen as a designator for the boundaries being pushed, and elements combining in new ways. This can have political, racial and gender implications, in addition to scientific and medical cultures. And, as Braidotti reminds us, "The simultaneity of potentially contradictory discourses about monsters is significant; it is also quite fitting because to be significant and to signify potentially contradictory meanings is precisely what the monster is supposed to do" (135). The morphology of monsters – the ability to shape-shift and alter form – is closely related to the monster's hybridity: It is the animation of multiple ontologies, elements, species. In being protean, the monster can effectively embody differences otherwise kept separate.

2. The Monster As Latent

Monsters have always been here, will continue to be, and will appear again. They are irrepressible, and uncanny, as at any moment what seemed on the surface homely and comforting and secure, might be re-appropriated by something that should have remained secret but that nevertheless, "through some chink in the shutters of progress," had returned.[54] The quality of latency refers to the perception of the monster as a creature that can always escape; "we see the damage that the monster wreaks, the material remains (the footprints of the yeti across Tibetan snow, the bones of the giant stranded on a rocky cliff), but the monster itself turns immaterial and vanishes, to reappear somewhere else . . . (JC 6). This conception of the monster is especially salient when referring to microscopic agents, such as pfiesteria, as contemporary monsters of industrialization. The ubiquitous quality of such threats speaks to the quality of latency – dormant, concealed, and not known until the visible symptoms appear.

In reference to the monster's latency, Cohen calls upon monster theory, therefore, to

---

Century, (New York: Putman, 1954).

[54] Vidler, 26.

> concern itself with strings of cultural moments, connected by a logic that always threatens to shift; ...monstrous interpretation is as much process as epiphany, a work that must content itself with fragments (footprints, bones, talismans, teeth, shadows, obscured glimpses – signifiers of monstrous passing that stand in for the monstrous body itself) (6).

One need only think of phantoms, mummies and the irrepressible creature in Ridley Scott's *Alien* to invoke associations with the latent monster who *appears* to be eradicated, (JC 5) only to return later.[55] To be latent is to leave signs, gestures of presence, a "standing in" for the actual. The monster is often concealed, hidden and latent, buried under surfaces of normalcy, rationality, codes and rules of conduct. Its ontological status is then of a lurking, subcutaneous presence, whose appearance signals its latency. The monstrous other keeps emerging on the discursive scene; it persists in haunting not only our imagination but also our scientific knowledge-claims.

> . . . Because this embodiment of difference moves, flows, changes; because it propels discourses without ever settling into them; because it evades us in the very process of puzzling us, it will never be known what the next monster is going to look like; nor will it be possible to guess where it will come from. (Braidotti 150).

The significance of the monster's latency relates to the "uncanny" quality of always having been presence, and therefore not entirely outside of the bounds of culture and norms. The monster is both within us, among us, and without us, and the latency relates to this aspect of in/visibility – simultaneously seen and not-seen. The monster, as a boundary figure and hybrid, is literally situated between borders and classes, and tends to work behind the scenes of our awareness. When the monster "appears" – de-monstrates – then, it is as much about our *ability to see it*, as the qualities possessed by it.

---

[55] The monster's latency has direct relationship to the function of psychic repression, and our desire to see something exorcised, only to re-experience it again. It also may, as Professor Hillis has suggested, relate to the commercial aspects of creating ever more horror movie sequels!

3. The Monster As Transgressive

The monster is "difference made flesh, come to dwell among us," writes Cohen (7). In its function as a dialectical Other, or "third-term" supplement, the monster is an incorporation of the forbidden, the transgressive, and therefore is rejected. Or, as Canguilhem (1962) writes,

> A monster is a living being of negative value. . . The monster is not only a being of diminished value; it is a being that is valuable only as a foil. By demon-strating how precarious is the stability to which life has accustomed us, the monster gives an all the more eminent value to . . . morphological regularity . . . (29).

In its morphological irregularity, the monster *transgresses* classification and hence the rules used to govern and order normative reality. This can be seen most explicitly in the more shape-shifting monsters,[56] whose ontology is fluid and capable of assuming different forms. An embodiment of difference, the monster can function as a composite of cultural Otherness, taboos and aberration.

In relation to transgression of rules and boundaries is the concept of *abjection*. The abject is something seemingly rejected yet from which one does not part: neither within or without, but both at once.[57] The abjected is both part of and outside of oneself, a threat that suggests contamination or exposure in some form. Julia Kristeva suggests the phenomenon of abjection, thus, is a response to that which is not a lack of uncleanness or health, per se, but that *which disturbs identity, system and order*: that which does not respect borders, positions, rules. The abject is the in-between, the ambiguous, the composite (4). Abjection is represented by the traitor, the liar, that which is "immoral, sinister, scheming, and shady: a terror that dissembles, a hatred that smiles. . . a debtor who sells you up, a friend who stabs you..." (4). In that the monster does not respect boundaries it is transgressive: it transgresses

---

[56] Shape-shifting monsters, in addition to pfiesteria, include such notables as Stevenson's Dr. Jekyl/Mr. Hyde, Kafka's cockroach in The Metamorphosis, and the morphing aliens on the program *The X-Files*.

[57] As the reader may observe, this quality of abjection relates to latency and the uncanny; a threat that is articulated as simultaneously within and without, and therefore is a ubiquitous threat.

the realm of the visible and is moved to the terrain of the uncanny, that which can invade and infiltrate despite our efforts to bound it.

In abjection, the threat is perceived as a form of opposition to the self on the deepest level, a level that may be beyond articulation[58]. It remains "beyond the scope of the possible" (4). Herein, therefore, lies the pfiesteria-monster-in-wait, embodying the horrors of industrialization, waste, germs, pollution, and plagues. Pfiesteria induces abjection in concert with existing cultural fears surrounding contamination, micro-threats (agents without body, such as radiation, viruses, bacteria, etc), and hybrid lifeforms. These invisible agents do not obey the boundaries of the body, and seem to enter without one's knowledge and without warning. One can inhale, ingest, take in the agent, only for it to surface later, at an indeterminate time. As an ecological crisis, contamination is radical not only because of the effective danger, but also because as Zizek states, "what is at stake is our most unquestionable presuppositions, the very horizon of our meaning, our everyday understanding of 'nature' as a regular, rhythmic process."[59] For Zizek, the threat in question is radiation fallout from Chernobyl, and its invisible, ubiquitous rupture to normality. This transgression of "certainty" links us back into the notions of classification, ontology and order, and can be seen as an extension of the monster as an agent of "radical doubt" and transgression.

The cultural need for criteria and classification, and the horror/fascination accompanying abject transgressions deserves attention here. Monstrosity is born in the breakdown of such criteria. To understand the import of such categorical crisis, it is helpful to look towards sources of the imagination of the clean and unclean, the holy and unholy.[60] Similarly to Kristeva, Mary Douglas treats the issue of dirt and pollution as one of ordered relations and contravention of that order. She writes,

---

[58] I posit later the placement of environmental hazards in this category, of "ultimate" threat, beyond articulation.

[59] Zizek, Slajov. Looking Awry. Cambridge: MIT Press, 1991:34.

[60] Which, of course, is culturally contingent and variable.

> In a chaos of shifting impressions, each of us constructs a stable world in which objects have recognizable shapes, are located in depth, and have permanence. In perceiving we are building, taking some cues and rejecting others. The most acceptable cues are those which fit most easily into the pattern that is being built up. Ambiguous ones tend to be treated as if they harmonized with the rest of the pattern. Discordant ones tend to be rejected (36).

Douglas's invocation of ordering and classification is crucial towards accessing the psychic elements of the pfiesteria-as-monster, and how we come to view such organisms linked with ecological degradation as a form of deviance and monstrosity. Perhaps pfiesteria is an "ambiguous cue." Pfiesteria's relationship with pollution – specifically animal waste – places it in the context of the issues of dirt and pollution Douglas describes, as *transgressive*. As she writes, "dirt then, is never a unique, isolated event. Where there is dirt there is a system" (36). I would continue, the idea of the *monster* takes us straight into the field of symbolism and promises a link-up with more obviously symbolic systems of purity. That which is dirt, unpure and unholy is that which is out of place. In this sense, space and dirt are intrinsically related, and dirt is defined through its spatial relationship. Sand on the beach is not "dirt" however, in the kitchen it is.[61] That which is "monstrous" is related to boundaries and which boundaries are being transgressed.

Reading Through the Monster

My choice for a tropological approach for reading pfiesteria in this project stems from my conviction that the monster, in this case, operates as a historical and cultural construct, that lends insight into the ways issues and phenomena are framed, located, and responded to. As news media texts, in the act of mediating information, engage in an act of rendering phenomena coherent and meaningful, the very metaphors and metonyms evoked in this move constitute the discursive aspect of environmental communications, and the ways in which

environmental issues are framed and narrated in the media. In contrast to a news-content analysis approach,[62] I have chosen instead to look to the imaginary charge surrounding the monster; the monstrous body, more than an object, is a vehicle that constructs a web of interconnected and yet potentially contradictory discourses about its embodiment, which will be explored in the following chapter. The popular media stories relating to the pfiesteria issue offer a compelling and evocative look at the monster in our midst today.

Braidotti writes,

> Monsters are...many objects, whose configuration, structure and content shift historically. If they can be called an object at all, they are one which is the effect of, while being also constitutive of, certain discursive practices: climatic and geographical anthropologies in antiquity; theological divination through the Renaissance; then anatomy; embryology; until we reach today's cybernetic and environmental chimio-teratology (150).

Braidotti also identifies four periods in the scientific history of monsters: classical antiquity, the pre-scientific and the scientific era. The fourth period she adds is that of "the genetic turning point in the post-nuclear era, also known as cybernetic teratology, and the making of new monsters due to the effects of toxicity and environmental pollution" (141).

The significance of reading culture through the monster lies in the invitation to think discursively and critically about the relationship between the imaginary and threat; how contemporary ecological issues are figured, embodied, and narrated. If pfiesteria, as Latour's ozone hole, is "simultaneously real, social and narrated"[63] (6) we stand much to gain in terms of understanding environmental communications more effectively. In the following chapters, I will explore how the metonym of the monster relates to the representation of pfiesteria in

---

[61] Thanks to Professor Hillis for this observation.

[62] The method of news-content analysis is in reference to Margaret Martin's "Pfiesteria Hysteria or the Cell from Hell? Newspaper Coverage of Pfiesteria piscicida," Masters Thesis. The University of North Carolina, Chapel Hill, 1999.

[63] Latour writes, "The ozone hole is too social and too narrated to be truly natural; the strategy of industrial firms and heads of state too full of chemical reactions to be reduced to power and interest; the discourse of the

the media for the past several years, and to suggest an *environmental chimio-teratology* as a potentially regenerative lens towards understanding contemporary responses to a shifting and increasingly threatened ecosphere.

ecosphere is too real and too social to boil down to meaning effects. Is it our fault if the networks are *simultaneously real, like nature, narrated, like discourse, and collective, like society*?" (6).

CHAPTER IV

The Monster is Afoot: The Rise of the Pfiesteria-Monster

> Even Hollywood would be hard-pressed to conceive of a monster such as the one ravaging fish populations along the East Coast. It thrives in brackish, pollution-rich waters but survives in cool, clear, fresh water too. Its voracious appetite extends to all types of seafood, and it has been known to sample humans as well. Its victims may already number in the billions.[64]

I first heard about pfiesteria piscicida in October, 1997 – not from the pages of a newspaper or magazine, but in the lecture hall of Love Auditorium at Duke University. The lecturer, a marine biology professor from University of North Carolina at Chapel Hill, opened with the words, "This is something straight out of a horror movie." I sat in my seat, aware of the fear running through my body. Something likened to a horror movie was striking our local watersheds? As the professor continued to tell us about pfiesteria, he became increasingly animated, gesticulating about this "cell from hell," this creature that could morph and attack millions of fish with a vengeance, retreating silently, invisibly to the murk below.

As I started researching this issue, I became conscious of a discourse dominated by a rhetoric of horror and science fiction allusions accompanying the news stories, whether in *People Magazine* or the *New York Times*. Story after story referred to pfiesteria as a lurking, swarming presence, or a rapacious, demonic creature out to suck the blood out of anything in its path. It was when I came to a particular website, produced by the organization Microscopy U.K., that I realized the full extent of the symbolic charge of this particular organism and its "wrath." (see Fig. 4). The website read, in bright red, B-movie style font, "The Cell from Hell! *Pfiesteria piscicida*. 24 life-stages...9 years of invasion...billions of

fish killed...attacks people...COMING YOUR WAY SOON?!" Along with an of illustration of the "cell from hell" looking like a B-movie spoof, reads an excerpt from *Exodus*, "...and the waters that were in the river turned to blood..." As I read on, the accompanying text provided the "full story": "These killers of the seas...are unstoppable, microscopic and deadly creatures...with nerve toxins which many of the war mongers on our planet would be proud to have in their arsenal."[65] There are myriad fears being invoked in this text: invasion, an aggressive, attacking microbe (reminiscent of AIDS and similar viral epidemics), the comparison with the Red Sea parable[66] and the equation of pfiesteria with weaponry on an international scale.

At first I assumed I had happened upon the product of an obscure group in the U.K. I was surprised and intrigued to notice discursive similarities in many of the mainstream, popular newspaper coverage of the issue, beginning in1995 with the first wave of major fish kills in North Carolina and Maryland, and continuing well into 1997. Article after article engaged the language of science fiction, supernatural phenomenon, plague and invasion, and most commonly, a deadly and diabolical microbe. As Hajer points out, most environmental stories have an emblem to focus public attention upon, creating a handle or metonym to stand in for the whole issue. The emblem and protagonist of this story was undeniably pfiesteria-as-monster. Pfiesteria had emerged, effectively, as a powerful metonym, a potent symbol evoking a discourse far beyond the immediacy of the situation in the Neuse River or the Chesapeake Bay (see Fig. 5 and Fig. 6 for example of such symbolism). In reading these newsstories, I was connected with deeply embedded cultural imagery of deep threat, transgression and the monster.

In this chapter, I apply engage a critical, interpretive reading to regional and national media texts on pfiesteria. After having surveyed approximately three hundred news articles pertaining to this issue, in local and national publications between 1995 and 1997, I have chosen a sample of twenty-five texts drawn from a range of publications, including the

---

[64] Phil Berdardelli, "Microorganism...or Monster?" Insight on the News 4 Aug. 1997: 38.

[65] Micscape Magazine website, <http://www.microscpy-uk.org/mag/art97b/hell.html> September 1997.

Raleigh News & Observer, *New York Times, Washington Post, Baltimore Sun, Tampa Tribune, Wilmington Morning Star, Science News, Newsweek,* and *E: The Environmental Magazine*, that most aptly illustrate the rhetoric of the monster. This critical reading draws upon the approach of cultural studies to read media texts and representations as key sites for analysis (Kellner 1995) in the production of stories and explanatory schemes. Taking my cues from Cohen's "Monster Theses,[67]" I will identify the thematic characteristics from the monster trope that frame this reportage. Due to space limitations, I will be looking at several key media texts to serve as a representative sample of news stories about pfiesteria in North Carolina. I begin with a brief overview of media coverage immediately following the first fish kills in 1995.

"It Looked Like the End of the World"

In the summer of 1995, the succession of serious fish kills (>50,000 fish) in the Neuse River estuary. Immediately following these kills, there was a brief window in which the media reported on the issue framed as ecological and pollution-driven. These initial articles (roughly between June 1995 and August 1995) primarily cited citizen's responses and eye-witness accounts in the New Bern and Onslow County regions, and speculated on the causes vaguely and with reference to estuary ecology. The *News & Observer* ran a story on August 9, 1995, "Thousands of Fish Die in Neuse Tributary," featuring pollution as the primary agent in the fish kills, not pfiesteria. Rick Dove, the Neuse River Foundation's River Keeper, is heavily quoted as spokesperson and eye-witness for the events:

> Environmentalists say the string of fish kills confirms their worst fears that coastal rivers are becoming unsafe for both fish and people. 'None of our rivers are looking too good right now,' said Rick Dove...'they have that dirty brown sewage look.' . . . recent winds may have kicked up pollution from the bottom of the Neuse and driven it into secluded Goose Creek. Bacteria in the

[66] The Red Sea, the website informs us, "owes its name to the colour imparted to the waters by the algae of the group Myxophyceae..." a relative to pfiesteria-like dinoflagellates.

[67] Cohen, 2-27.

> pollution then multiplied in the creek, sucking up oxygen and killing everything that couldn't swim to safety. [68]

Pfiesteria does not appear in this text; the organisms in question is referred to as "the fish-killing dinoflagellates," and "microorganisms that consume oxygen as they feed." There is also mention of another fish kill in the Roanoke River, having taken place in the last week of July, where "a 37-mile stretch of the River became littered with dead fish, including thousands of striped bass, a valuable catch for anglers and commercial fishermen."

A few days later, another article reads:

> "It looked like the end of the world," recalled Kelly Hooker, whose family has been in the crabbing business since 1980. "The whole creek was just sheeted with dead fish." Struck by a lethal combination of stagnant water, hot weather and man-made pollution, several coastal waterways this summer have become deadly places for fish and other marine life.[69]

This quote conveys the visceral quality of the fish kills – a sight so shocking and disturbing it reminds Hooker of "the end of the world" – and suggests the role of pollution in the events. The article continues, becoming quite detailed in its account of estuarine ecology, maintaining two types of fish kills, one "man-made," and the other "natural":

> Scientists say a combination of natural and man-made forces account for the fish kills. Some are the direct result of livestock spills, such as the June 21 collapse of Onslow County hog lagoon that flooded the New River with 25 million gallons of swine waste. Others resulted from natural "salt-wedges" that have long plagued the Neuse and other slow-moving coastal rivers during dry summer months. During such events, the estuary becomes layered with salt water on the bottom and warmer fresh water at the top. Without winds or storms to mix the water, little or no oxygen makes it into the two layers, resulting in fish kills.

---

[68] Stuart Leavenworth, "Thousands of Fish Die in Neuse Tributary," News & Observer 9 Aug. 1995. Ironically Dove maintains that he does not see himself as an "environmentalist" although he is often referred to as such.

[69] Stuart Leavenworth and Lynn Bonner. "Dramatic Fish Kills Trouble Scientists," News & Observer 12 August 1995.

The references to estuarine ecology, types of fish kills, as well as the losses of commercial fishermen, will eventually drop out of the reportage on the issue. Subsequently, the identity and persona of pfiesteria will come to frame most of the reports.[70] Not only does pfiesteria take on a more central role, but the biology of the organism becomes entangled with the political processes surrounding research, public health warnings, governmental response, industrial defensiveness, and personality battles between Burkholder and several North Carolina public health officials and marine scientists.[71] Through it all, however, the charisma of pfiesteria is the sustaining emblem of the issue as portrayed in the media.

On August 6, 1995, Burkholder is introduced to the public in the News & Observer as being

> on the trail of another mass of dead fish . . . she cuts a stack of newspapers to ribbons to get at articles on pollution. State environment officials have placed part of the blame for recent fish kills on heavy rains, but Burkholder is looking for something more . . . [72]

Here she is effectively cast in the detective role, as well as challenging the "state environmental officials. It is subtle but the message is clear: This is a woman willing to transgress boundaries to get what she wants. And, in this article we are told, she even shares some characteristics with pfiesteria (although the dinoflagellate is not referred to once by name in the article):

---

[70] The tendency for media coverage during the first few days of a crisis is to start out, whether appearing in newspapers, magazines or on television, following the inverted-pyramid, information tradition, emphasizing the facts and documenting the event, but usually giving little more than "who," "where," and "when." Journalist and author Susan Moeller (1999) describes this pattern of media coverage, what she calls "incident reports," as moving after the first few days into stories that are "typically more narrative, a style favoring the creation of protaganists, victims and antagonists, suspense and conflict . . . the raw journalism of the earlier stories gives way to stories richer in symbolism and rhetoric" (60-61).

[71] See, for example: "And Just Who Has Credibility Now?" Wilmington Morning Star 15 August 1997; , Stuart Leavenworth "Feud Stops Study of Fish-Killing Algae," News & Observer 24 August 1997; "The Fuss, the Fish," News & Observer 27 August 1997; Joby Warrick and Stuart Leavenworth, "Who Will Rescue the Ravaged River?" News & Observer 9 March 1996; Associated Press, "Hunt To Mediate: Feud delays battle against fish-killing bug," Wilmington Morning Star 29 August 1996.

[72] Lynn Bonner, "Her Mission Is Watching Water," News & Observer 6 August 1995.

> Known mostly for helping find a microscopic organism that straddles the line between plants and animals, Burkholder, 41, has cross a few boundaries herself – from research in fresh water to research in salt water, and from science to policy.

Burkholder not only studies pfiesteria, but she appears to have an ontological affinity with its shape-shifting character. This effectively questions her trustworthiness, for what good scientist is as shifty and slippery as the organism on the other end of the microscope? With this increasing convergence of Burkholder and pfiesteria, (as female and scientist she eventually becomes, as Haraway describes, close to the now-represented natural object, and the "ventriloquist" for the speechless objective world (312).

By September 1995, the tone of reportage of the Neuse River fish kills shifts dramatically as pfiesteria enters the discursive scene. It arrives, not as a pathogen, but as a "killer":

> Marine scientist Howard Glasgow confronts the creature that nearly stole his mind. The creature is a killer -- a tiny shape-shifting, aquatic organism known as a dinoflagellate that has attacked millions of fish in some of North Carolina's most fragile rivers since 1991.[73]

The article sets the stage for the framing of pfiesteria and its articulated relationship with this complex environmental issue. Tsai's article showcases pfiesteria's lethal impact upon humans through the example of researcher Glasgow, "who unknowingly breathed the dinoflagellate's airborne toxins for two years, and [turned] from an easygoing fellow who loved to read into a forgetful, disoriented and compulsive man who flew into rages over nothing... He couldn't remember his phone number. He couldn't read or do simple math."

Similarly to recent computer viruses proported to wipe out the entire content of one's computer hard drive, pfiesteria is seen as an invading agent who can enter our minds and wipe them clean of all memory and personality. In the anecdote above, Glasgow is not only ill, but his personality *has changed.* Pfiesteria can possess people, leading them to "fly into rages." In addition to highlighting Glasgow's experience with the microorganism, Tsai

---

[73] J. Tsai, "A Killer Worthy of Science Fiction," News & Observer 10 September 1995.

quotes Burkholder (who supervises Glasgow) as observing of pfiesteria, "It's a very fascinating and very bizarre creature...It's the most versatile micro-organism I've ever seen..." Burkholder's relationship with pfiesteria is consistently harnessed to frame her in the public eye as an obsessed and strange woman (again, not unlike the representations of pfiesteria itself.) This is accomplished by the contrast of Glasgow's experience and her "fascinated" stance. The constellation of scientist, organism, pollution, policy and health are beginning to emerge.[74]

As the details of the organism come forward, the emphasis upon its "strange" and "horrific" characteristics begin to take hold, becoming synonymous with its appearance. Accompanying this shift, there is an increase in the circulation of electron-microscopy photographs. Produced by Burkholder's laboratory, these present the organism floating in a black space of nothingness, illuminated by the white/gray light of the equipment, erasing the waters, muds, sediments, algae, effluent and wild in which it lives[75] (See Fig. 1, 5).

The Pfiesteria-Monster Emerges: Three Aspects

As briefly described above, the emergence of the pfiesteria-monster appeared relatively quickly on the heels of the 1995 fish kills, and as Burkholder's research on the organism became readily publicized. Drawing upon Cohen's monstrous thematics, I will show how pfiesteria appears in the media as charismatic monster, following three primary categories: hybridity, latency and transgression. These aspects exist in concert and shade into one another. For example, the monster's latency is due in part to its hybrid nature, and its ability to shape-shift; it is transgressive as it crosses the boundaries between plant and

---

[74] One website article read, "Burkholder and pfiesteria have developed a relationship which could border on love-hate. And rightfully so. In the early years of her studies, she was not aware of the critter's potential and unknowingly exposed herself to the toxic side of pfiesteria's personality" (Carole Morison, "The Cell from Hell and Poultry Farmers." National Contract Poultry Farmers Association website. http://www.web-span.com/pga/enviro/pfiesteria.html 30 November 1997).

[75] Haraway (1992) notes, "...cultural productions of all kinds...such as the visualizing technologies that bring color-enhanced killer T cells...actively intertwine in the production of literary value: the coyote and protean embodiments of a world as witty agent and actor..." (298).

animal, industry and biology, and in stimulating deep cultural fears of microbial threats and pre-millennial apocalyptic scenarios. Parsing the qualities of the pfiesteria-monster is a performance in how the act of articulating discrete behaviors of the monster quickly becomes a shadow game, the monster eluding any true anatomical dissection.

1. The Pfiesteria Monster as Boundary Figure

Cohen writes of monsters, " they are disturbing hybrids whose externally incoherent bodies resist attempts to include them in any systematic structuration. And so the monster is dangerous, a form suspended between forms that threatens to smash distinctions" (6). The difficulty of fitting pfiesteria into existing structures of classification, taxonomy and order can be reflected in one of Burkholder's reports: "...[it] represents a new family, genus and species of dinoflagellate...[this] discovery of toxic ambush predators has begun to alter paradigms about estuarine dinoflagellates, even at the fundamental level of discerning the major players" (1995 43). This taxonomic boundary-crossing is often conveyed as monstrosity:

> It is part plant, part monster – with an appetite for destruction surpassed only by its uncanny knack for disguise. Stephen King could not have invented a more sinister scenario than the one posed by Pfiesteria piscicida – an ancient and not-so-distant cousin to the organism that causes runaway algae blooms known as red tide.[76]

Rather than being seen as a hybrid of plant and animal – a protist capable of photosynthesis and consumption of protozoa – its hybridity is represented through the persona of the trickster, an organism capable of disguise.[77] This perception is reflected in articles such as the following *New York Times* piece: "Like something out of a horror movie, the cell from hell attacks in gruesome ways, frequently changing its body form with

---

[76] Jan Hollingsworth, "Invisible Killer Stalks Coast." Tampa Tribune 12 April 1997.

[77] Haraway puts a slightly positive spin on the trickster, noting "Perhaps our hopes for accountability for techno-biopolitics in the belly of the monster turn on revisioning the world as coding trickster with whom we must learn to converse..." (Ibid).

lightening speed. It can also masquerade as a plant or lie dormant for years in the absence of suitable prey" (Broad 1996). The assumption inherent in pfiesteria's "masquerade" is that it is pretending to be something that it is not; an animal pretending to be a plant. This bias towards seeing pfiesteria as an animal disguised as a plant is curious. As seen in the following *News & Observer* article, it is discursively positioned as assuming the traits usually associated with the animate:

> Its hard to imagine a creature as strange as pfiesteria. In the universe of cellular animals, it is something of a quick-change artist...its ability to morph into wildly different forms makes it difficult to detect. When no prey are present, the creature can encase itself in a pod, or 'cyst' and lie dormant in river sediment. It also can become a blob-like amoeba that feeds on microscopic algae. Sometimes it can even appear to become an algae, thanks to its ability to "steal" the chlorophyll-producing chloroplasts from its algae prey and use photosynthesis to supplement its nutrient supply.[78]

Or, in the *News & Observer* article, "Dramatic Fish Kills Trouble Scientists": "At times it masqueraded as a sun-loving algae that photosynthesized. At other times it changed into a crawling amoeba. And under harsher, low-nutrient conditions, it enclosed itself into a tough cyst. Later...into a two-tailed monster . . ."[79]

Pfiesteria's morphology gives agency to its hybridity. Not only does it possess elements of more than one family, genus and species, but it animates these elements to become a master of deception and escape. This relates to the aspect of latency, and is articulated in the *Baltimore Sun* headline: "Cell From Hell is Nearly Impossible to Detect: Plant-Animal Rises From Muck To Kill Fish, Then Returns to Invisible Form" (Wheeler, 8 August 1997). In this headline, the conflation of diabolical ("cell from hell") with pfiesteria's hybridity, muck-dwelling and invisibility come together to convey a total image of pfiesteria's fearful qualities. In addition, Joby Warrick's *Washington Post* article reads:

---

[78] Stuart Leavenworth, "The Feeding Frenzy of a Morphing 'Cell From Hell.'" Washington Post 9 June 1997: A03.

[79] Leavenworth and Bonner, Ibid.

"In the presence of certain kinds of fish, pfiesteria drops its *pseudo-plant routine* and turns into a *microscopic sea monster*...as a dinoflagellate, it sprouts a whip-like tail, races to its prey and spews 'multiple toxins'..."[80] To "drop a routine" suggests a quality of intentionality and cunning that is assigned to pfiesteria repeatedly. In its "dropping," "sprouting, "racing," and "spewing," the "sea monster's" latency is animated by its ability to be deceptive, wily and particularly active.[81]

Pfiesteria's plant-animal hybridity joins with the horror associated with plant life that can consume animal life; when the direction is from "higher" species to "lower" it is acceptable, but the move from "lower" to "higher" falls into the category of monstrosity and freakishness, like the strangely weird Venus Fly-Traps that were once sold on television in the 1970's. The image of a microscopic dinoflagellate consuming fish flesh (and potentially human flesh) is reflected in the following passage:

> The story of pfiesteria is part science fiction, part murder mystery. Think of Alfred Hitchcock's *The Birds*, where normally meek warblers turn homicidal. Think of Jack Finney's *Invasion of the Body Snatchers*, where alien 'pods' take over human beings and render them zombies.[82]

Instead we have "normally meek" algae turned rampant and violent in our midst. Not only that, but they seem to be able to take over human beings as well, as seen in Glasgow, Burkholder and others reporting health affects from the organism.

There is a third dimension to pfiesteria's ontological liminality, and that is its articulation through industry. Even more specifically, its ontology is constructed as having risen out of the murk of nutrients, effluent spilled or run-off from the concentrated animal

---

[80] Joby Warrick, "The Feeding Frenzy of a Morphing 'Cell From Hell." Washington Post 9 June1997. Emphasis mine.

[81] I would like to suggest as well the relation of these verbs and the notion of scale. Given pfiesteria is a microscopic organism, that cannot be seen with the unaided human eye, such modes of action and movement: "racing" and "spewing" for example, connote a scale larger than its actual size; the terms lend a dimensionality, an embodiment difficult to equate with micro-organisms. This rupture of scale, while linguistically triggered, is increased through the magnified images of pfiesteria accompanying many of the articles.

operations (COAs)[83] along the effected regions. It is almost as if it is literally "spawned" in nutrient-rich pollution. This "embeddedness" in industry marks pfiesteria not only as a taxonomic hybrid in terms of its plant/animal status, but a bio-industrial hybrid as well. In this sense, pfiesteria is *simultaneously* biotic and industrial; or, as Haraway phrases it, "techno-biopolitical" (298). Pfiesteria cannot be articulated, in this historical moment, as individuated from industrial runoff and pollutants. Its having-been-here-already, as reflected in its ancient status as a protist, merges with human practices to become a metonym for what happens when humans cross the line of industrial travesties: it is an industrial transgression reflected in a morphing toxic microorganism.

The pfiesteria-monster's apparent lust for hog waste is chronicled extensively and with a certain quality of fascination and repulsion: "Tests in Burkholder's lab suggest the animal prefers dirty, nutrient-rich water, such as found near some municipal sewage outflow pipes." [84] The article continues,

> A growing fear, intriguing but not confirmed, is that nutrient runoff from human development, the heavy use of fertilizers and livestock farms is feeding the growth of the marauding swarms. If this is true, it bodes ill, given the global spread of the phosphorus and nitrogen from human sewage, animal waste and fertilizers that is increasingly polluting freshwater streams flowing into coastal estuaries.

The bio-industrial synergy is complete; pfiesteria thrives in anthropogenic pollutants. "The organism was apparently awakened," we are told in the *Tampa Tribune*, "by increasing amounts of man-made pollution."[85]

Throughout 1997, news articles on the pfiesteria issue assert the connection between pfiesteria and industry quite directly.[86] The monster has been spawned by industrial wastes

---

[82] Rodney Barker, And the Waters Turned to Blood: The Ultimate Biological Threat (New York: Simon & Schuster, 1997) 262-263. Barker is quoting a 1995 Greensboro, NC, *News & Record* article.

[83] Burkholder, et al. refer to COA's in "Impacts to a Coastal River and Estuary from Rupture of Large Swine Waste Holding Lagoon." Journal of Environmental Quality 26(6), Nov.-Dec. 1997, 1451.

[84] Broad, August 7, 1996.

[85] Hollingsworth, Ibid.

and ineffectual regulations. As one *Washington Post* article quoted a chicken farmer as saying, "You have to look at what's coming down from the head of the creeks...we've become chemicalized."[87] The human role in "waking" this otherwise dormant organism up through our industrial transgressions is found as well on the National Contract Poultry Farmers Association website:

> It could have been just another sediment-dwelling microorganism lying dormant, unknown and harmless in estuarine waters for 10 million years. But no. Modern hog farming changed all that: Harmlessness became harmfulness. Soon this one-celled critter, drunk with spilled or runoff nutrient-rich hog manure, was heard to stutter: "It's time to party!"[88]

Here, the uncanny makes itself felt, as the inversion of harmlessness and harmfulness takes place. This may be one of the most profound aspects of environmental issues: they tend to invert processes from safe to unsafe that are, as Haraway has said, commonplace and taken-for-granted. The poisoning of air, water, and soil arguable take what is harmless and render it harmful.

This intersection of nature and culture as embodied in pfiesteria may suggest a metonym of industrial threat as captured in this shape-shifting, hybrid and phantom unicellular being. The pfiesteria-monster is perhaps a phantasm of industrial waste, come to life, not unlike previous monsters of human creations: Shelley's *Frankenstein*, Crononberg's *The Fly,* Stoker's *Dracula*, and the Jewish mystical creature, the *Golem,* among many others. I will suggest in Chapter 5, that perhaps the pfiesteria-monster is a metonymic device towards negotiating what Beck (1992) refers to as "industrial reflexivity."

2. The Pfiesteria Monster as Latent

---

[86] This is likely to be related to the corresponding political events of redefining the Clean Water Act and the passage of regulations for hog farm waste management practices.

[87] Joby Warrick, "Maryland Struggles to Find Diagnosis for Ailing River," Washington Post 13 August 1997.

[88] Rice, 1997.

Pfiesteria, we are told, lurks, swarms, and haunts. It is the uncanny, insidious, ghostly presence in the bottoms of our estuaries, a site that has been the primary source for fisheries, crabbing and shellfish harvesting. It is uncanny in its invasion of a previously safe site (a source of nourishment and recreation) and transformation of it into a haunted space. The pfiesteria-monster is the prototype uncanny threat, that remains out of our field of vision until its sudden violent attack. Its latency and shifting ontology shunt it into a "shadow kingdom:"[89] while in photographs we see the organism magnified as a looming creature, with punduncle and scales, it is both corporeal and incorporeal (see Figure 1, 5). Its magnified, corpulent body is key in the images, but in its behavior it is invisible and undetectable until the lesion-ridden fish surface.

> Pfiesteria is often depicted as a "bloodthirsty menace," that spends most of its life lying dormant on the bed of a lake or river, feeding itself by photosynthesis like a plant. But when a fish swims by, [it] snaps awake, propelling itself by two whip-like...tails and releasing a powerful poison into the water. As the fish dies, the pfiesteria sticks out its tongue-like penduncle that bores into the prey's flesh. As it feeds, it is busily creating myriad dinoflagellates.[90]

It is appropriate to note that this excerpt, as with many media accounts about pfiesteria, is inaccurate on several counts. First of all, pfiesteria does not live in lakes, only in estuaries where the water has a certain amount of salinity. Second, pfiesteria is "snapped awake," not by "a fish," but rather very large *schools of fish*, which secrete a substance that seems to stimulate the organism. Third, it has been confirmed that pfiesteria does not feed directly upon the fish, but rather on the bits of epidermal tissue and blood cells that flake off the fish after pfiesteria's toxin is released (Burkholder, et al. 1997a, 1052). Fourth, as pfiesteria feeds, it is not producing "dinoflagellates" but *gametes*. It is important to note the

---

[89] In what Ulrich Beck calls the "shadow kingdom," risks are no longer an external "out there" but are hidden behind the visible world, and threaten human life; dangerous, hostile substances lie concealed behind harmless facades. In many environmental issues related to industry, Beck asserts the cause of threat is unseen by the naked eye, and is ubiquitous. This is the key characteristic of the "risk society" (72). This quality of latency as well relates to the construction of the monster, who "always escapes" (Cohen, 4).

[90]Scott Mooneyham, "Cell from Hell Sparks Row," Toronto Star 4 May 1997.

confluence of inaccurate data and the construction of a particular type of creature (e.g. the term "poison" as opposed to "toxin.")

Each of these inaccuracies is conducive to creating a particular thematic consistent with that of the monster. Saying the organism lives in lakes spatially expands the zones in which humans are apt to be present, and therefore the risk of contamination or exposure. Its latency and lurking are thus spatially increased. The suggestion that pfiesteria is animated by one fish is an inaccuracy that further attributes the potency and vitality of the organism and its danger; if one fish, then one human perhaps? Seeing the organism as plunging its pundancle into the fish, again, creates a perception of hyper-agency. This narrative is consistent with the myriad of narratives accounting its behavior and dominion in the waters. Pfiesteria lies in wait, ready to spring to life at any time. It "snaps awake," "propels" and "swarms." As reflected in an article in the *New York Times*, "The animal can lay hidden on the bottom of an estuary for years in its cyst stage, awaiting an as-yet-undetermined chemical signal..." Or in the *Tampa Tribune*, "That it had lurked, undiscovered, for so long is testament to its ability to change forms at will..."

Cohen reminds us,

> Monsters can be pushed to the farthest margins of geography and discourse, hidden away at the edges of the world, and in the forbidden recesses of our mind, but they always return. And when they come back, they bring not just a fuller knowledge of our place in history and the history of knowing our place, but they bear self-knowledge, human knowledge. Monsters ask us how we perceive the world, and how we have misrepresented what we have attempted to place (20).

This function of the monster must be born in mind as an obscuring agent, siphoning psychic energy into pfiesteria's carnivaleque macabre nature and away from its context.[91] The reference to its status as "undiscovered" effectively masks the recent "discovery" as being related to the rising levels of nutrient loading into the estuary via lagoon spills and increased human development along the estuary. It masks the fact that the rapid expansion of North Carolina's concentrated animal operations (CAOs) in the late 1980's to early 1990's

---

[91] The psychic/political functions of the monster will be discussed in Chapter 5.

catapulted the state from the seventh to second largest in swine production in the nation within five years (Barker and Zublena 1995; Burkholder, el al. 1997). Pfiesteria's latency, then, and the construction of its latency in the media accounts contain political and psychic consequences. Constructing pfiesteria as "everywhere and everywhen" encourages fear of the organism, rather than fear of the *practices* that may have encouraged its toxic impact upon marine life.

When we come to see the pfiesteria-monster through the media, we see the damage that the monster wreaks, the material remains – thousands of dead fish sheeting the rivers, the lesions and sores, the memory and neurological disorders in humans, and blackened shellfish – but the monster itself turns immaterial and vanishes, to reappear someplace else, at some other time. We are told, "It lurks, motionless and virtually undetectable, on the bottom of a brackish creek or river. Then it swarms up to attack fish – and possibly unsuspecting fishermen and bathers as well."[92] We are told, repeatedly, that pfiesteria is "deadly and persistent,"[93] "reminiscent of a horror movie"[94] and "a danger that is entirely invisible at times."[95] In its latency, it is time-space distantiated; it does not obey the conventions of space and time, a paradigm based on immediacy and the here and now.[96] As Massumi (1993) writes of contemporary threats such as AIDS and global warming,

> These faceless, unseen and unseeable enemies operate on an unhuman scale. The enemy is not simply indefinite (masked, or at a hidden location). In the infinity of its here-to-come, it is elsewhere, *by nature* . . . It exists in a different dimension of time . . . Elsewhere and elsewhen. Beyond the pale of our accustomed causal laws and classification grids (11).

---

[92] Timothy Wheeler, "Cell From Hell is Nearly Impossible to Detect; Plant-animal Rises From Muck to Kill Fish, Then Returns To Invisible Form." The Baltimore Sun 8 August 1997.

[93] Jeff Selingo, "Fish-Killing Algae," Morning Star (Wilmington, NC), 17 April 1997: 1B.

[94] Selingo, ibid.

[95] William Broad, "A Spate of Red Tides Menacing Coastal Seas," New York Times, 27 August 1996.

[96] See Barbara Adam's Timescapes of Modernity: The Environment & Invisible Hazards. I am heavily indebted to for her ideas on time-space distantiation and latency of industrial threats.

Like the film *Alien*'s protagonist Ripley, even as she destroys the taxonomically ambiguous Alien, the "monstrous progeny returns, ready to stalk again" (JC 4). (It is not too far afield, admittedly, to cast Burkholder in a similar role as heroine fighting the uncanny beast, as Rodney Barker unabashedly does in *And the Waters Turned to Blood*.[97])

The narrated latency of pfiesteria is indeed a composite of biological processes (its ability to lie dormant in cyst form for extended periods of time, for example), industry (it has been "latent" until "as-yet-undetermined" substances have altered the marine ecology sufficiently), and perception. That is, we see pfiesteria as latent precisely because of its undetectable presence in the environment, and the apparent inability to track and pinpoint its next appearance. Its latency is also animated in the constructions of pfiesteria as a ubiquitous, microscopic agent, ready to strike at any time. It cannot be underestimated how this construction resonates with the human history of plagues, pestilence, and epidemics.[98] To paraphrase Cohen, the pfiesteria-monster always escapes, and it is this escape that enables pfiesteria to be marked as a *phantom*. Pfiesteria's "phantom behavior" and status as a "new 'phantom' dinoflagellate" (Burkholder, et al. 1992, 402) is described in *Nature*:

> Here we describe a new toxic dinoflagellate with 'phantom-like' behavior . . . The alga requires live finfish or their fresh excreta for excystment and release of a potent toxin. Low cell densities cause neurotoxin signs and fish death, following by rapid algal encystment and dormancy...within several hours of death where carcasses were still present, the flagellated vegetative algal population had encysted and settled back to the sediments.

In this context, the term "phantom" is applied as a linguistic handle to pfiesteria's behavior, and further serves to articulate its processes in terms that are culturally available. A phantom is something that is apparently seen, heard, or sensed, but has no physical reality – a ghost,

---

[97] Barker, ibid.

[98] If we are to forget the particular psychic charge surrounding microscopic threats, bacteriologist Hans Zinsser reminds us, "Swords and lances, arrows, machine guns, and even high explosives have had far less power over the fates of the nations than the typhus louse, the plague flea, and the yellow-fever mosquito. Civilizations have retreated from the plasmodium of malaria, and armies have crumbled into rabbles under the onslaught of cholera spirilla, or of dysentery and typhoid bacilli. Huge areas have been devastated by the trypanosome that

specter. Culturally, it conjures up images of haunted houses, horror films, and is conjured today in popular entertainment (as demonstrated in the recent release of *Star Wars: The Phantom Menace.*) Etymologically, phantom is traced to the Latin *phantasma*, phantasm. What is worth noting is, while in Burkholder's paper the organism is described as having "'phantom-like' behavior," it is construed in the media accounts as having the ontological status of a phantom.[99]

Related to pfiesteria-monster's latency is its the aspect of having always been present. Broad writes,

> The main constituent of red tides is algae, an ancient group of primitive plants dating to the first terrestrial life. The microscopic killers in most cases are algae that occur in the form of dinoflagellates, tiny unicellular organisms that usually photosynthesize and contain chlorophyll but that also have the animal-like trait of bearing twin tails, which whirl the organism forward.[100]

This simultaneity of ancient and new resembles the quality of the phantom that has always been there, only to resurface again. This quality lands pfiesteria in the terrain of the uncanny: "sinister, disturbing, suspect, strange; it would be characterized better as 'dread' than terror, deriving its force from its very inexplicability, its sense of lurking unease, rather than from any clearly defined source of fear – an uncomfortable sense of haunting rather than a present apparition" (Vidler 23). This quality of lurking, ever-present but invisible, ubiquitous ontology signals the heart of how the pfiesteria-monster operates. Its home is not only the estuaries, but in the imagination of the uncanny and "deep dread."[101] Perhaps Haraway sums

---

travels on the wings of the tsetse fly..." Rats, Lice and History (New York: Black Dog & Leventhal, 1934, 1963).

[99] A separate, but equally fascinating study, would be a discursive analysis of the scientific papers produced regarding pfiesteria. While Burkholder adamantly maintains no endorsement of seeing pfiesteria as a monster (she states, "I've never used [cell from hell] before; scientists are easily accused of sensationalizing their data when they use such terms, which is one reason why I've always avoided that phrase. The second reason is that I don't consider pfiesteria is that way..." (Burkholder, JoAnn. E-mail to Ricki Rusting. 29 May 1999). It is however described in various scientific papers as "insidious" (Burkholder, et al. 1995a), "swarming" (Burkholder, et al. 1997a), and "cryptic" (ibid.).

[100] William Broad, "In a Spate of Red Tides Menacing the Coastal Seas," New York Times 26 Aug. 1996: C:1

it up most aptly, in writing, "...neither the immune system nor any other of biology's world-changing bodies – like a virus or an ecosystem – is a ghostly fantasy. Coyote is not a ghost, merely a protean trickster" (298).

3. The Pfiesteria Monster as Transgressive

As Latour has noted of monsters, they tend to thwart modernist efforts of "purification."[102] He writes, "the more we forbid ourselves to conceive of hybrids, the more possible their interbreeding becomes" (12). This statement has interesting implications for the creation of a pfiesteria-monster: perhaps our imaginary of it a reflection of repressed fears and desires. In this respect, pfiesteria-monster is radically transgressive; it crosses sacred boundaries, it represents toxicity and hog waste, and the transgressions of human industry. It also is transgressive in its apparent zeal and lust it has for attack and blood. In fact, some articles, such as this one, suggest it craves human blood:

> Burkholder looked into the television monitor attached to a powerful microscope. Before her, a swarm of tiny killers swam into view. "Oooo, look at all those," she said as the microbes darted across a slide covered with human blood and attacked the red blood cells, sucking them dry. One of them stuck its proboscis into a blood cell and spun around in a gruesome dance. A rival joined in. "We haven't seen them fighting over a cell before," mused Burkholder. . . "that's interesting."[103]

Latour's concept of purification has particular relevance for the pfiesteria-monster, as it defies order on multiple counts of taxonomy, time-space distantiation, and conventions of policy and science. As soon as Burkholder and her research team began to publicize a causal

---

[101] Reference to "deep dread" is from Kai Erikson's work, A New Species of Trouble: Explorations in Disasters, Trauma, and Community (New York: Norton, 1994).

[102] For Latour (1992), the term "modern" designates two sets of different practices: the first is "translation," which "creatures mixtures between entirely new types of beings, hybrids of nature and culture." The second is "purification," which creates two entirely different ontological zones: that of human being on the one hand; and that of nonhumans on the other" (10-11). Translation corresponds to "networks," and "purification" to "partitions between a natural world that has always been there, a society...and a discourse." This conception is wholly relevant to our discussion of pfiesteria, as it is transgressive in its nature/culture hybridity, and it is *this* hybridity, I would suggest, that occasions the pfiesteria-monster.

relationship between pfiesteria and the fish kills, and subsequently hog farm effluent, the media seized on the story as a narrative of human, as well as biological, transgression. Perhaps stated most directly by Mulvaney, pfiesteria transgresses norms:

> Imagine a microscopic marine predator which can spend years at a time without food, but which, when conditions are favorable, suddenly, emerges from the sediment, changes shape and kills millions of fish after stunning them with a poison so powerful it can cause immuno-suppression in humans. Pfiesteria spends much of its life as harmless-looking, microscopic cysts in the sediment. But introduce large numbers of fish and, under the right conditions, it undergoes a transformation out of a science-fiction movie. Phytoplankton aren't supposed to behave like that. In fact, no form of life is supposed to behave like that.[104]

The text above suggests several things. First, the "conditions" referred to are non-specific and vague, allowing pfiesteria to come forward as the dominant agent. The omission in this passage of nutrient loading from non-point sources along the affected region, for example, renders this a story about pfiesteria and its freakish behavior. The monster effectively obscures its origins, rises from the depths, the mists, as if on its own accord, or desire for massacre. Second, while pfiesteria *appears* harmless, it clearly is not. Thus, the organism is a master of appearances, and trickery. Moreover, it is suggested that once microscopic, "in the right conditions" pfiesteria becomes larger than its previous size; the invocation of a "science-fiction movie" suggests a 'larger-than-life' scale, thereby effectively distorting any conception of scale altogether. And, perhaps most suggestively, this article makes the claim that not only are "phytoplankton not supposed to behave like that," but "no form of life is supposed to behave like that." This claim shunts the organism off the map of normality, and into a twilight zone where up is down, left is right, and the rules of nature are topsy-turvy.

Douglas introduces the concept of holiness in relation to order, boundaries and the transgression of hybrid forms. She points out, in *Leviticus* XIX, 19, we find: "You shall keep my statutes. You shall not let your cattle breed with a different kind; you shall not sow your

---

[103] William Broad, "Battling the Cell From Hell," National Wildlife Aug.-Sept. 1997: 10.

[104] Kieran Mulvaney, "Watch Out for Killer Algae," E Magazine: The Environmental Magazine April 1996, 7.2:15.

field with two kinds of seed; nor shall there come upon you a garment of cloth made of two kinds of stuff." In this sense, hybridity, being of more than one genotype or species, as pfiesteria is, transgresses Biblical notions of purity and holiness. Douglas writes,

> Holiness is exemplified by completeness. Holiness requires that individuals shall conform to the class to which they belong. And holiness requires that different classes of things shall not be confused...Holiness means keeping distinct the categories of creation. It therefore involves correct definition, discrimination and order. Qualities contrary to holiness are theft, lying, false witness, cheating in weights and measures . . . (53).

Related to holiness is the notion of "teeming in the waters." This mode of being has direct reference in the Bible as: "The last kind of unclear animal is that which creeps, crawls, or swarms upon the earth" (*Leviticus* XI, 41-44). Douglas continues,

> Whether we call it teeming, trailing, creeping, crawling, or swarming, it is an indeterminate form of movement. . . . 'swarming' which is not a mode of propulsion proper to any particular element, cuts across the basic classification. Swarming things are neither fish, flesh nor fowl. Eels and worms inhabit water, though not as fish; reptiles go on dry land, though not as quadrupeds; some insects fly, though not as birds. There is no order in them. (57).

The fear of ambiguous creatures, creatures that threaten the boundaries created to sustain order and meaning, are invoked by pfiesteria. Paul Shepard writes,

> we become agitated when [they] seem not to fit the taxonomic system. Such incompatible animals shock us. The degree of our upset indicates that something more is disturbed than the plan of animal classification. Exceptions to the system threat not only animal order but our basic model for order... [T]hose anomalies signify...alarming forces of disorder and evil, much worse than flawed classification.[105]

Zerbavel, in *The Fine Line*, writes of a vigorous campaign "against the "in-between, the ambiguous, the composite" in an attempt to create a world "without twilight" (4) and the "deep anxiety, even panic" that attends the intermediate realm. Pfiesteria threatens the "cognitive tranquility" of anyone committed to a rigidly compartmentalized world. Such

---

[105] Paul Shepard, Thinking Animals, 76.

ambiguous creatures are often perceived as quite dangerous.[106] Aversion to the ambiguity of such boundary phenomena falls under Douglas' category of "pollution behavior," a "reaction which condemns any object or idea likely to confuse or contradict cherished classifications."[107]

This deep fear and anxiety often leads to the creation of superstitions, and I would argue, to the manufacturing of mythologies giving pfiesteria powers of intention, evil, and diabolical behavior. Such mythologies are fueled in part by the fear of the "twilight" pfiesteria conjures as it straddles multiple taxonomic regions. The hybridity of pfiesteria also references its origins, or rather, the origins of its appearance. Its association with the "evils" of industrialism, and wanton development not only imbue it with human qualities, but confuses the separations between the biotic and the "mechanistic." That is, pfiesteria is articulated within the context of machine, economic development, construction, human waste, and ultimately human practices. Fish kills occur in the wild, and are considered a natural phenomenon, but *these* particular fish kills were not seen as natural or wild by most observers. The history provided in Chapter Two suggests the threshold on which pfiesteria emerged, unable to be divorced from the context.

The creation of the pfiesteria-monster may be a metonym not only for the fear of the ambiguous, but functions politically in relation to environmental perception and crisis. Perhaps pfiesteria is made into a monster because it offers a safe, spectacular distance for observing the underbelly of industrialism. Generally monsters are experienced as a spectator activity, where one is safe within the confines of the cinema, living room, or simulated amusement park "haunted house." With the pfiesteria-monster the spectator is watching this weird and diabolical being move through the rivers, coursing through fragile estuarine ecosystems and behind the glass of laboratory tanks, and the abjected object is not factory farms "teeming" with animals, or millions of gallons of swine waste, or a lineage of dumping into the Neuse. The everywhere and everywhen of pollution is given a face, a body,

---

[106] Eviatar Zerubavel, The Fine Line: Making Distinctions in Everyday Life (Chicago: U of Chicago P, 1991), chaps. 3-4.

[107] Mary Douglas, Purity and Danger (New York: Praeger, 1966), 36. I am grateful to Michael Uebel's essay

that can be gazed at or ogled from the screen or newspaper in its delicious horror. Or, perhaps the abjection is more safely experienced through the body of the pfiesteria-monster.

In the following chapter, therefore, I will discuss the cultural factors contributing to the making of the pfiesteria-monster; specifically, the metonymic strategy in relation to industrial reflexivity, hogs, and ecological degradation and threat. I conclude with a discussion of what the implications of this project pose for environmental communications.

"Unthinking the Monster" in Cohen, ed. Monster Theory: Reading Culture, 266.

CHAPTER V

Dismembering the Monster: Conclusions and Implications

> In threat people have the experience that they breathe like plants, and live from water as the fish live in water. The toxic threat makes them sense that they participate with their bodies in things – 'a metabolic process with consciousness and morality' – and consequently that they can be eroded like the stones and the trees . . . (Beck 1992, 74).

Reading the environment is a slippery endeavor. Ecology as *oikos*, as home, as wilderness and as threatened runs deep in human consciousness as a shifting, fluid kaleidoscope of perceptions. Imagining the environment is a historical, cultural, social, biological, political, economic, mythological and discursive phenomenon. Given the reading of pfiesteria as a monster surfacing in the discourses of our environmental communications, we are now able to ask of the implications of this evolution. As a hermeneutic of myth and risk, biology and ideology, the monster reminds us of the materiality of discourse.

In this chapter, therefore, I ask why the monster appeared in the discourses of the North Carolina fish kills: why we created a monster. I begin with how the pfiesteria-monster is born: geographically, culturally and historically situated. Second, I pose the question of why the monster arose, at this particular time and place: why the pfiesteria-monster was so readily seized as acceptable metonym and mode of articulating this particular issue. I suggest that the monster is operative as a mediating body – a hegemonic suture – a way of rendering the unfamiliar into familiar terms.

Third, I address what is at stake in this arrival; what cost does the monster exact in terms of effective and constructive modes of knowing and understanding our world, and the threats with which we are faced? Finally, I conclude with the imperative of discursive understanding within environmental thought and practice. If the biology of pfiesteria "stirs

the imagination," as Burkholder has suggested,[108] the question to be asked is what this imagination is comprised of, and how it relates to the project of environmental communications, and possibilities for efficacious and constructive modes of agency.

A Monster is Born: Historical and Cultural Moments

In 1995 the Neuse River was sheeted with floating, dead fish covered with lesions and sores, stretching miles down the river. It is a dramatic, bodily event for the observer; particularly if this site has been one's home, place of work, recreation, and sustenance.[109] The shock of the scene, compounded by the mystery surrounding the massive fish kills and their recurrence, has been documented as extremely traumatic by citizens in the region.[110] These particular fish kills, taking place in the hot summer months and extending into early fall, startled the public into paying attention to this estuary and the problems of water quality and pollution in the region. However, it was more than the fish kills – the sight of dead fish, and the serious losses to marine life and the fishing industry – that garnered such attention. There was a microbe associated with the fish kills, captured under the luminous white light of the electron microscopy that emerged as the protagonist.

Multiple moments came together in the making of this monster, taking place in spheres of science, popular culture, geographical stresses, and microbial fears. The monster, effectively was summoned out of a constellation of multiple discursive practices, providing cohesion where there was rupture. In the scientific arena, JoAnn Burkholder and her

---

[108] JoAnn Burkholder, Personal interview. 1 June 1999.

[109] According to Vidler, the uncanny "is not a property of the space itself nor can it be provoked by any particular spatial conformation; it is, in its aesthetic dimension, a representation of a mental state of projection that precisely elides the boundaries of the real and the unreal in order to provoke a disturbing ambiguity, a slippage between waking and dreaming (11). The Neuse River, then can be arguably a site for the uncanny – nature-turned-spoiled. If actual spaces are interpreted through this lens, it is not because they themselves possess uncanny properties, but rather because they act, historically or culturally, as representations of estrangement.

[110] Citizen responses have been documented most prominently in the four-part series "Sold Down the River," produced by the News & Observer between March 3 and March 9, 1996. See Stuart Leavenworth and Joby Warrick, "Pollution Starts at Home," "A Bumper Crop of Waste," "Coastal Playground Turned Killing Ground" and "Who Will Rescue the Ravaged River?"

colleagues Howard Glasgow, Edward Noga and Cecil Hobbs published multiple papers asserting the relationship between pfiesteria and hog waste beginning as early as 1992 and continuing into 1997.[111] This assertion forms one crucial moment of the pfiesteria-monster's emergence: in the language of marine biology, the 'phantom dinoflagellate' was becoming known in the laboratory and the estuaries. The political contestations surrounding this scientific discourse has continued to fuel the imaginary of pfiesteria with profound contingency. The monster emerges and responds: "I *am* here, and I am waiting until the next attack. You cannot find me, but I am here."

If we take a moment to reflect on the monster as a liminal being, and Cohen's assertion that the monster "appears at times of crisis as a kind of third term that problematizes the clash of extremes" (6), then perhaps we can begin to understand pfiesteria-monster's metonymic function. For, as Cohen reminds us, "the monster is born . . . as an embodiment of a certain cultural moment – of a time, a feeling, and a place" (6). The pfiesteria-monster was born was in the (nutrient) waste-laden waters, in an environmentally unaccountable region of the Neuse River Estuary, a site with a history of ecological trespasses.[112]

This monster was also born in an era of microbial monsters, from the Ebola to the AIDS virus. One year earlier, the best-seller The Hot Zone, about the recent emergence of deadly viral organisms was published. In the text of this book we can find similar rhetoric engaged to describe these microbes as with pfiesteria, and the culture of fear surrounding them. Robert Preston, author of The Hot Zone, writes:

---

[111] See J.M. Burkholder, Edward Noga, Cecil Hobbs and Howard Glasgow Jr., "New 'phantom' dinoflagellate is the causative agent of major estuarine fish kills," Nature 358, (30 July 1992):407-410 for a very *unambiguous* assertion of this causality, as well as the later publication, J.M. Burkholder, et al., "Impacts to a Coastal River and Estuary from Rupture of a Large Swine Waste Holding Lagoon," Journal of Environmental Quality 26 (1997):1451-1466. In 1995, Glasgow and Burkholder, along with three additional scientists, published the controversial paper "Insidious Effects of a Toxic Estuarine Dinoflagellate on Fish Survival and Human Health," Journal of Toxicology and Environmental Health 46 (1995):501-522.

[112] This history, as with most environmental histories, is extremely difficult to locate. The environmental history of a place seems to occupy a status of absence – an erasure of geological memory. However, a chronicle of such trespasses in the Neuse region related to the hog industry can be found in the Pulitzer-Prize winning News & Observer series "Boss Hog: North Carolina's Pork Revolution," a five-part series between February 19-26, 1995. Chapter Two attempt to address this erasure through giving a brief historical account of the Neuse region's industrial impacts.

> The more one contemplates the hot viruses, the less they look like parasites and the more they begin to look like predators. It is a characteristic of a predator to become invisible to its prey during the quiet and sometimes lengthy stalk that precedes an explosive attack.[113]

Like pfiesteria, the microbe in this discourse is a "predator" whose ontology is determined by its latency ("invisible") and violence ("explosive attack.") Other stories about Ebola frame scientists as "detectives" who were tracking down a "culprit," a "crafty virus," a "murderous virus," or a "hardened killer" that eluded detection."[114] This strongly echoes Burkholder's mythic role as a sleuth, whose "mission is watching the water" and who, "on the trail of another mass of dead fish . . . cuts a stack of newspapers to ribbons to get at articles on pollution."[115] There is an emerging discourse of microbial agents as predators lurking in our midst, effectively raising and instating public fears of contamination while eliding the harder, more complex questions of their origins and context.

There is a historical/cultural contextualization as well to the rise of the pfiesteria-monster: the demonization of pfiesteria has associations to deep human fears of plague and contamination. It can be argued that red-tides exist on a continuum with microbial threats, including plague and pestilence: they are caused by microorganisms, who attack and feed upon vulnerable and unsuspecting victims.

Historically, of all diseases, the plague, which has felled millions and repeatedly changed the course of history, reverberates most psychically: the plagues of the Old Testament, the plague of Thucydides, the plagues of medieval Europe (Zinnser 13, 41; Moeller 60). Although most current plague outbreaks can be controlled with antibiotics, the historic meaning survives. The plague continues to be mentioned in the same breath as AIDS and the trendy "emerging viruses" of Ebola, dengue and Lassa fevers (Moeller 65). Moeller argues that "'Plague' as a late-twentieth century disease is upon examination no more threatening than many others and much less threatening than some. Thus the reality of the

---

[113] Robert Preston, The Hot Zone (New York: Anchor Books, 1994) 136. It may be worth noting that the conditions said to precede a pfiesteria-fish kill are hot, still, dry summers, followed by rains (Paerl, 1998).

[114] Joseph Contreras, et al., "On Scene In the Hot Zone," Newsweek 29 May 1995, 49.

disease is less scary than the history of it; the Black Death is a more terrifying image than the modern-day plague" (65). Plague, as it has come to exist in the contemporary imagination today, represents "affliction, or calamity; originally one of divine retribution."[116] To articulate pfiesteria as a "microscopic killer" plugs into this larger explanatory scheme of retribution.

As a microbial threat, pfiesteria has appeared in countless media discourses as a scourge, marauding swarms, and microscopic killers.[117] The impacts of pfiesteria upon fish as well as humans contribute to this imagination considerably, resembling epidemics leaving people scarred, debilitated, and invaded:

> The microscopic pfiesteria has been described as a cross between a plant and an animal. In its predatory stage, the algae poisons fish with a mysterious toxin, then eats its prey, leaving behind *telltale red and black sores* . . . State officials declared an unprecedented health warning . . . *advising people not to swim, fish or come into contact with waters* where a toxic algae has been attacking menhaden and other fish.[118]

Given the close psychic, if not biological, relationship pfiesteria has to the cultural association with retribution, the emergence of pfiesteria as monster has a potential metonymic link to Biblical punishment: "all the waters that were in the river turned to blood . . . and the fish that were in the river died and the Egyptians could not drink of the water. . . and there was blood through all the land . . ." (*Exodus* 7:2—21). This may be the first record of algal blooms as suggested by multiple commentators and journalists.[119]

---

[115] Lynn Bonner, "Her Mission Is Watching Water," News & Observer 6 August 1995.

[116] "Plague." American Heritage Dictionary New College Ed. 1999.

[117] It may be helpful to note "scourge" is defined by the American Heritage Dictionary as 1. "To inflict punishment," and 2. "A cause of widespread and dreaded affliction, as pestilence or war." Etymologically it stems from *escorge,* to whip (1999).

[118] Stuart Leavenworth, "Health Warning Issued For Part of Neuse," *News & Observer* 7 Oct. 1995.

[119] See, for example, Miscape Magazine's focus on pfiesteria (Figure 2) and William Broad's "A Spate of Red Tides Menacing Coastal Seas," New York Times 27 Aug. 1996:C1. In addition to using the term "spate," which has associations with monstrosity, ("Spate." American Heritage Dictionary, 1999) Broad reminds us that "The Bible says the Egyptians were plagued by a blood-red tide that fouled the Nile and killed fish. Homer's Iliad reports similar woes, and the Red Sea is probably named after noxious blooms."

The Move to the Outside: What is at Stake

The coming together of a deep cultural fear of microbial threat and human industrial practices (and transgressions) collide, creating a monster that both is and is not an Other. The discourse of the pfiesteria-monster effectively moves the threat to the "outside," beyond the parameters of human control and human agency.[120] The agency of the situation is placed squared upon the organism and its bizarre behavior. And, as pfiesteria is conceptualized as a red-tide, related to retribution and apocalyptic imagination, the less human agency is invoked and the more it becomes an issue of divine punishment. These means of conceptualizing the organism does not, surprisingly, point to quick action and deep cultural reflection upon our practices, but locates the threat in a larger, extra-human context of Biblical proportions. The move to the outside allows the emotional fear and abjection to be present, but the translation into action and industrial reflexivity is hindered. Seeing pfiesteria as red-tide-as-Biblical emblem suggests a promise of an omniscient vision, and a promise of delivery from history. Haraway points out in reference to such moves, it is a promise of "what they cannot, of course, deliver, or only pretend to deliver at the cost of deathly practices."[121]

The articulation of pfiesteria as being both natural (biotic) and humanly-linked (thrives on nutrient-rich pollution) is a quality shared by a new generation of risks (Beck 1992 13; Adam 31; Ewald 122). Using the "insurable" as a yardstick of risk perception, Ewald notes how contemporary risks tend to exceed the limits of "the insurable in two directions: towards the infinitely small-scale (biological, natural, or food-related risk), and toward the infinitely large-scale . . . " (222). These risks, Ewald writes:

> . . . are on the level of natural catastrophes. They concern entire populations, whose withdrawal, removal, or exodus must be planned (Seveso, Three Mile Island) . . . Unlike an earthquake, however, they derive from human activity, from technological progress, and as such, accepted: they are artificial

---

[120] I am grateful to Peter van Wyck for articulating "moving to the outside" as "easily erasing the fact of tremendous inequities in the way profits, technology, and political ideologies mediate the lived experience of human subjects. . . Moving to the outside shifts attention away from humans as subjects existing in various relations of power, to humans as objects of administrative control," Primitives in the Wilderness: Deep Ecology and the Missing Subject. (New York: SUNY P, 1997), 23.

[121] Donna Haraway, "Cyborgs at Large: Interview with Donna Haraway," Technoculture, ed. Constance Penley and Andrew Ross. (Minneapolis: U of Minnesota Press, 1991), 16.

> catastrophes. I propose to call these risks ecological risks, since they do not concern individuals taken separately . . . so much as the biological balances between a population and its environment.[122]

The threats posed by pfiesteria and major fish kills, are ecological risks that potentially affect collectivities and not only single individuals. This is an important aspect of how the monster functions in terms of psychic apprehension of threat: it *mediates* the risk that is at once natural and technological. In the wake of "artificial catastrophes" the monster appears as a mode of giving the systemic issue a localized body and a "face."[123] While effluent flows, drains, disperses and is considered to be "non-point" pollution, pfiesteria is a lurking creature, a critter, and leaves in its wake bodies of dead, bleeding fish.

Monsters, Michael Uebel tells us, help us to "make meaning from nonsense."[124] In this metonymic function, monsters *embody* hybridity, liminality and contingency, and are able to effectively bridge discontinuities and ruptures of order and classification. This suturing function extends to the discontinuities of ecological degradation, the transgressions of humans upon the biological world, and the interruption with processes of nature. Pfiesteria as a monster provides an explanatory scheme, even if based in science fiction and horror imaginations: somehow, likening an environmental crisis to a science fiction movie attaches a referent of familiarity to a scary and destabilizing situation.

Revisiting Burke's conception of metonymy as a strategy to "convey some incorporeal or intangible state in terms of the corporeal or tangible" (503) and White's invocation of tropological understanding as: "rendering the unfamiliar... familiar; of removing it from the domain of things felt to be "exotic" and unclassified into one or another domain of experience encoded adequately enough to be felt to be humanly useful, non-threatening, or simply known by association" (5), we now find ourselves asking the

---

[122] François Ewald, "Two Infinities of Risk," The Politics of Everyday Fear, ed. Brian Massumi. (Minneapolis: U of Minnesota Press, 1996), 222.

[123] Please see Fig. 1. This image of pfiesteria, first published in 1992, was the largest circulating image of the organism throughout 1995-1997. This image arguably possesses certain anthropomorphic qualities; it seems to have two eyes, two ears, and is in the act of spewing something. It has, in my mind, acquired the nick-name of "evil-baby." I do not think its human likeness is arbitrary in its wide circulation; we seem to need a face.

pfiesteria-monster, "what meanings are you giving us? Why do we long to see you dancing on our midst, in the very realm which is exiled and closed off to us – the shared imaginary of the normal, dominant culture?"

In the act of giving coherence and meaning to threatening and confusing phenomena, the monster as metonym allows the affectivity to take place ("that is gross, disgusting, I am frightened") while maintaining a distantiation of agency ("there is nothing I can do about this"). It is a spectacle to be *witnessed* and *marvelled* at. While I acknowledge the "diversity" of monsters and their specific psychic functions (some monsters are admittedly scarier to some more than others) in general, through the monster the spectator can watch, grimace and feel horror or queasy, and turn back to the relative safety of one's psychic landscape. The monster remains outside, leering but not entering. As a cultural construction, the monster is constitutively distanced; this is the political danger of its presence. While providing a mode of experience, it instates a barrier to action, and makes agency impossible. Uebel expresses this double charge well:

> Monsters are mythic creatures in the Levi-Straussian sense: as figures of liminality or in-betweenness, monsters, like the structures of mythic circumscribing them, are at the same time charged with the insolvable task of resolving real social contradictions and with the function of inventing symbolic solutions to imaginary contradictions (266).

In this light, it begins to make sense that in the wake of the Neuse River fish kills, a proliferation of alliances, foundations, task forces and collaborative groups emerged as a distinct "counter-discourse" to the pfiesteria-monster discourse. Environmental issues need more than to be *witnessed* and *marvelled* at. These political and educational outreach organizations produced fact sheets, established hotlines, and promoted outreach towards "taming the monster." The successes of these entities lie upon their emphatic insistence of not engaging the monster, and bringing the public up close enough to the issue to render the monster obsolete: in political redress, there is not much room for monsters usurping all of the

[124] Michael Uebel, "Unthinking the Monster," in Cohen (1996):266.

needed psychic energy.[125] Penetrating the monstrous body of the looming cell from hell reveals a glimpse into a far more complex and nuanced situation.

There is a related aspect of the monster that pertains to impeding action. Because monsters blur categorical distinctions, they are especially symbolic of "displaced, hence threatening, matter" (Uebel 266). Uebel calls this the "unthought." I would consider this related to disavowal; the psychic process of "choosing" not to know. While this is arguably a form of agency – one is choosing a response on some level – it does not fulfill the mode of agency considered to be efficacious or constructive.[126] I would locate the ruptures occasioned by industrial-environmental hazards as forms of unthought, as existing on the conceptual boundaries of our culture and our way of life.[127]

Ecological threat is an occasion for the experience of abjection – in Kristeva's sense of the term as transgression – of territory, of home (*oikos*), nature (*natura*), and body. For Kristeva (1982), abjection is experienced as "if an Other has settled in place and stead of what will be 'me.' Not at all an Other with whom I identify and incorporate, but an Other who precedes and possesses me . . . A possession previous to my advent: a being-there of the symbolic" (10). The fear – symbolically or real -- of threats of contamination, invasion of microbial agents or the chimerical agents of radiation are experiences of abjection. The monster haunts these violated boundaries, gives body to the latent, systemic agent of

---

[125] These groups include: The Neuse River Foundation, Neuse River Rapid Response Team, Neuse River Bloom Project, Neuse River Estuary MODeling and MONitering Project, North Carolina Rivers Assessment, North Carolina Sea Grant, Pamlico-Tar River Foundation, in addition to education institution-based projects, such as North Carolina State University's Center for Environmental Farming Systems. This is a very partial listing.

[126] Dorothy Holland's work on environmental identity and agency has been very helpful for my evolving formulations of environmental agency. While disavowal and "unthought" do indicate a form of psychic response I am particularly interested in discursive possibilities for facilitating structures of action, and the psychic ability to face and know of a serious environmental threat, and to act in response in ways appropriate to the individual. This is the subject of my larger inquiry into the perception of environmental degradation and threat.

[127] Unless an individual or collectivity is faced with the circumstance of physical threat – toxic contamination, cancer caused by environment, breathing in the noxious fumes of pfiesteria, etc – most environmental degradations and threats lie on the periphery of consciousness: we may know they are there, but they do not (yet) disrupt the functioning of one's lifestyle. That is, many of us still drive in full knowledge of the impact of CO2 upon the atmosphere, or use chemicals in cleaning. The knowledge does not necessarily prevent or impede continuation of the offending act.

industrial hazard, and effectively elides the experience of industrial reflexivity brought about by a "risk society" (Beck 1992).

The Monster Stands at the Threshold of the Risk Society

One of Cohen's "monster theses" is that "the monster stands as a warning against exploration of its uncertain demesnes" (12). This takes us into the heart of the risk society and what Beck refers to as "industrial reflexivity" (1996 28). The entrance into the risk society

> . . . occurs at the moment when the hazards which are now decided and consequently produced by society *undermine and/or cancel the established safety systems of the state's existing risk calculation*. In contrast to earlier industrial risks, nuclear, chemical, ecological and genetic engineering risks a) can be limited neither in terms of time nor place, b) are not accountable according to established rules of causality, blame and liability, and c) cannot be compensated or insured against (31).

I suggest the body of the pfiesteria-monster lends a corporeality to the Neuse's environmental degradation. Contemporary industrial hazards, and Beck indicates, are marked by latency, time-space distantiation, and an "everywhere and everywhen"[128] quality as the agents themselves are invisible, until appearing in nervous systems, landscapes and rivers, acid-rain washed forests, or rising to the surface as dead, lesion-ridden fish. These indeterminate risks have grave psychic consequences:

> The indeterminancies associated with contemporary environmental hazards . . . are of an ontological-structural and epistemological-cosmological nature. Their reach into industrial societies' knowledge bases is far deeper and their permeation of that social fabric much more extensive than notions of uncertainty, risk and unintended consequences would lead us to believe (Adam 36).

The greater the indeterminancy, the greater the potential for monsters and metonymic methods of making sense and giving determinacy to uncertainty. The danger, of course, is in

---

[128] Massumi, 11.

the assignation of stability and determinacy to that which is indeed in need of fixing: the monster subsumes what is broken.

This is one of the central political implications of the pfiesteria-monster: it obscures psychological confrontation with the processes leading to its recent incarnation as fishkiller. This is the power of the discursive; it can function as a mechanism suturing potential ruptures in the dominant, mainstream belief system. It can be argued that ecological threats are disruptions to a dominant hegemonic system: global warming, holes in the ozone, resource depletion, toxic waste production, and massive fish kills crash like conceptual asteroids into the coherent cosmos of industrial progress and productivity, a cosmos that rarely factors in the ecological systems of life. Cracks start to form. Questions are asked.

There are many responses to these fractures: one is to see environmental threat as a form of millennial apocalypse and retribution. Another response is to call into question the methods of factory farming and waste-management that do not function with ecological intelligibility.[129] Yet another response is to make the "messenger" into the "demon" – and construct it into a monster. This is the materiality of discourse: in monster-making we are making decisions regarding agency and how to respond to ecological issues. In each of these frames (and they are merely a sampling) is the drawing upon the imaginary, the mythic and cultural informants for how to see and interpret the world. Each frame is interpretive, and therefore, exists on the level of language, of tropology – reading the world around us. In the apprehension of threat, there is the visceral response, reflexive, interpretive, and conceptual.

Returning to Massumi's astute observation of contemporary threats increasingly becoming nonspecific and "infinitely small or infinitely large," and "beyond the pale of our accustomed causal laws and classification grids" speaks to the temptation for monsters to occupy such zones of indeterminacy. He continues, "The theory that HIV is the direct 'cause' of AIDS is increasingly under attack. Recent speculations suggest multiple factors and emphasize variability of symptoms. AIDS, like global warming, is a syndrome: a complex of effects coming from no single, isolatable place, without linear history, and exhibiting no

---

[129] Toby Smith, in The Myth of Green Marketing: Tending Our Goats at the Edge of Apocalypse (Toronto: UTP, 1998) wisely engages Laclau and Mouffe's concepts of articulation and hegemony towards the

invariant characteristics" (11). The way most of public perception of global warming – or fish kills – is formed is through the discourse of media production. Partial information and fragments give rise to emblematic and simplifying icons, to stand in for the fuller context. What is needed are new conceptual models for grasping the "ungraspable," if that is indeed possible. We need to at least begin to ask what such models would look like.[130]

As a metonym, the monster subsumes the issue at hand, ingesting into its suturing body and rendering the environmental problem in oversimplified terms. It is not acceptable to simply witness and marvel at the profound degradation and loss of life engendered by our actions. It is not okay to make "artificial catastrophes" into spectator activities, to read about, see on the screen, and derive pleasure from the horror and monstrosity of the situation. For in its transgressions, pollution and degradation *are* forms of monstrosity: it is simulataneously on the inside and the outside. Without appropriate means of articulating and addressing degradation and ecological threat with respect to the systemic complexity and psychic content, we will continue to make an endangered earth into a monstrosity.

Discourse Matters

In rendering the fish kills as the work of a monster, and through the creation of a monster, the environmental issue remains an incident one watches through the window of a car or television monitor. In the act of oversimplification, the discourse of the monster enacts a violence in the erasure of the deep complexity, context and history of the issue. It also robs us of our capacity to find modes of action. (How can *I* slay the monster?) In this important sense, discourse is material, is effective upon agency, and matters.

I borrow the conceptualization of discourse from Ernesto Laclau and Chantal Mouffe, which is preferable because it avoids defining discourse as a purely linguistic phenomenon (Laclau and Mouffe 1985, 107-9). Indeed, it is discourse that gives actions and behaviors

---

deconstruction of the "myth" of green consumerism as a suture to the "hegemonic rupture" of ecological issues. I agree with this conceptualization and see the monster as a related form of hegemonic suturing.

meaning (such as sustainable farming practices), making them literally "sensible," whereas in competing discourses (such as industrial farming practices) they may be literally "nonsensical."[131] Hence, making pfiesteria into a monster is not simply a belief about the organism: it includes a whole set of practices that actualize that idea structure.

The charge upon environmental thinkers to address the discursive realm of our relations with the environmental is urgent. The criticism of environmentalism from cultural studies tends to emphasize the startling lack of discursive savvy in most environmental scholarship:

> Unlike other social movements relating to civil rights, women's rights, and lesbian and gay rights, the ecology movement has not generated its own tradition of cultural criticism in the last two decades. This can be partly explained by the ceding of authority to science in most matters ecological, but it is also due to the persistent notion that the environment does not have a human face. After all, the object of green criticism is not to uncover forgotten histories, or to open up a space for unheard voices. The earth does not speak back in quite the same way as women, people of color, or lesbians and gay men (Ross 169-171)

I would suggest that the project of environmental cultural studies and communications is precisely one of uncovering forgotten histories – it is in this uncovering that over-simplistic and overdetermined emblems such as the pfiesteria-monster are rendered incoherent. Is it possible to see pfiesteria as a demon in context with the full history of human impact upon the region over the past several decades? How does a historical environmental consciousness impact environmental agency?[132]

Michael Taussig reminds us of the slippery terrain of the discursive and the non-discursive:

---

[130] I feel that Latour and Haraway, in addition to the rise of feminist theories of science, medicine and virtuality, are taking this charge us. Latour's networks and Haraway's cyborgs are just two examples of such conceptual reconfigurations.

[131] Smith, 1998:24.

[132] This inquiry reflects a neglected area of environmental communications: the relationship of an (environmental) historical consciousness and agency. It is my hope to pursue this more fully in future projects.

> Now the strange thing about this silly if not desperate place between the real and the really made-up is that it appears to be where most of us spend most of our time as epistemically correct, socially created, and occasionally creative beings. We dissimulate. We act and have to act as if mischief were not afoot in the kingdom of the real and that all around the ground lay firm. That is what the public secret, the facticity of the social fact, being a social being, is all about. . . (Taussig 1993, xvii-xviii).

I suggest this recognition of the "mischief in the kingdom of the real" is where as environmental theorists we take our cue. It is in this place between the real and the really made-up that monsters proliferate and creature bridges, conceptual markers to allow steady footing and stability. And yet, these beings are not necessarily productive in terms of addressing the real, urgent needs of attending to our ecosphere. As degradation and ecological dislocations become increasingly immediate and present, pressing upon our boundaries, we need to know we are acting upon models and concepts that take us back into the land of the living and the real. This attunement to discursive practices applies to computer modeling and Geographic Information Systems as well as reporting on the environment. The invocation of stories and imaginations does not stop at the door of the laboratory or the zoom lens of the microscope.

This project originated out of a deep intuition regarding the interrelationships of "the psyche, the socius, and the environment."[133] It has been my contention to understand the larger problem of psychic apprehension of environmental threat, and to firmly situate this inquiry into the context of communication studies. If we do not understand the psychic processes of making the world a coherent place, and how ecological ruptures are part of these processes, environmental advocacy and agency will be continually crippled. It is my hope this project, as a glimpse into one facet of environmental discourse, can contribute to this larger, and urgently needed project.

---

[133] Guattari, Felix. "The Three Ecologies." New Formations 8(1989): 131047.

WORKS CITED

Adam, Barbara. Timescapes of Modernity: The Environment & Invisible Hazards. London: Routlege, 1998.

Anderson, Alison. Media, Culture and the Environment. New Brunswick: Rutgers UP, 1997.

Associated Press."Neuse River Expected to Run into Millions." News & Observer [Raleigh]. 23 September 1995.

---. "Million Dead in Onslow: Tiny Critters Get Blame for Big Fish Kill, Culprits pfiesteria." Morning Star [Wilmington]. 5 Sept. 1996, 1B.

Bakhtin, M.M. Rabalais and His World. Trans. H. Isowolsky. Bloomington: Indiana UP, 1984.

Barker, J.C. and J.P. Zoblena. 1995."Livestock manure nutrient assessment in North Carolina." Final Rep. North Carolina Agric. Ext. Service, North Carolina State University, Raleigh, NC

Beck, Ulrich. The Risk Society: Towards a New Modernity (London: Sage Publications, 1992)

---. "Rick Society and the Provident State." eds. Scott Lash, Bronislav Szerszynski, and Brian Wynne. Risk, Environment & Modernity. Thousand Oaks: SAGE Publications, 1996: 27-43.

Beradelli, Phil."Microorganism . . . or Monster?" News World Communications, Inc.: Insight on the News. 4 August 1997, Final Ed., 38.

Bonner, Lynn."Her Mission is Watching the Water." News & Observer [Raleigh]. 6 Aug. 1995.

Boyle, Robert H."Phantom," American Museum of Natural History 103 (March 1996): 16.

Broad, William J."A Spate of Red Tides Menacing Coastal Seas." New York Times 27 Aug. 1996: Late Ed., C:1.

---. "Battling The Cell From Hell." National Wildlife 35 (1997):10.

Burges, J., C. Harrison, P.Maiteny 1991."Contested meanings: the consumption of news about nature conservation." Media, Culture and Society 13(4), 499-519.

Burke, Kenneth. A Grammar of Motives. Berkeley: UCP, 1969.

Burkholder, J.M."Interactions of a Toxic Estuarine Dinoflagellate with Microbial Predators and Prey." Arch. Protistenkd 145 (1995):177-188.

---. Personal interview. 1 June 1999.

Burkholder, J.M., E.J. Noga, C.W. Hobbs, H.B. Glasgow, Jr., and S.A. Smith.1992. New "phantom" dinoflagellate is the causative agent of major estuarine fish kills. Nature (London) 358:407-410; Nature (London) 360:768.

Burkholder, J.M., Howard Glasgow Jr, and Cecil Hobbs. "Fish kills linked to a toxic ambush-predator dinoflagellate: distribution and environmental conditions." Marine Ecology Progress Series 124 (1995): 43-61.

Burkholder, J.M., et al. "Impacts to a Coastal River and Estuary from Rupture of a Large Swine Waste Holding Lagoon." Journal of Environmental Quality 26 (1997): 1451-1466.

Burkholder, J.M. and Howard Glasgow Jr. "*Pfiesteria piscicida* and other *Pfiesteria*-like dinoflagellates: Behavior, impacts, and environmental controls." Limnol. Oceanography 42 (1997): 1052-1075.

Canguihem, Georges. On the Normal and the Pathological. London: Reidel Publishing Co., 1966.

---. "Monstrosity and the Monstrous." Diogenes 62 (1967) 27-42.

Clabby, Catherine."Two Views of Toxic Threat in Rivers." News & Observer [Raleigh]. 15 July 1998.

Contreras, Joseph."On Scene in the Hot Zone." Newsweek 29 May 1995:49.

Cronon, William."The Trouble with Wilderness; or, Getting Back to the Wrong Nature." Uncommon Ground: Toward reinventing nature. Ed., William Cronon. New York: Norton, 1995. 69-90.

Douglas, Mary. Purity and Danger: An analysis of the concepts of pollution and taboo. London: Routledge, 1966, 1995.

Fiske, J."British Cultural Studies and Television" in Channels of Discourse, Reassembled. R.C. Allen (ed.), 284-326. London: Routledge, 1992.

Franklin, Deborah."The Poisoning at Pamlico Sound." Health September. 1995.

Glasgow, Jr., Howard and JoAnn M. Burkholder, et. al., "Insidious Effects of a Toxic Estuarine Dinoflagellate on Fish Survival and Human Health." Journal of Toxicology and Environmental Health 46 (1995): 501-522.

Grant, Meg."The Cell From Hell." People Magazine 19 May 1997, 101.

Hager, Mary."The 'Cell from Hell.'" Newsweek 25 Aug. 1997, 63.

Hajer, Maartin. The Politics of Environmental Discourse: Ecological modernization and the policy process. Oxford: Oxford UP, 1995.

Haraway, Donna. Simians, Cyborgs and Women: The reinvention of nature. New York: Routledge, 1991.

Haraway, Donna."The Promise of Monsters: A regenerative politics for inappropriate/d others." in Eds., Lawrence Grossberg, Cary Nelson, and Paula Treichler. Cultural Studies. London: Routledge, 1992. 295-337.

Hirsh, David A. Hedrich."Liberty, Equality, Monstrosity" in Ed. Jeffrey Cohen. Monster Theory: Reading culture. Minneapolis: U of Minnesota P, 1996. 115-140.

Hollingsworth, Jan."Invisible Killer Stalks the Coast." Tampa Tribune 13 Apr. 1997, Metro Ed., 4.

"And just who has credibility now?" News & Observer [Raleigh]. 15 August 1997,10A.

Jordanova, Ludmilla. Introduction. Languages of Nature: Critical Essays on Science and Literature. Ed. Ludmilla Jordanova. London: Free Association Books, 1986. 15-47.

Kellner, Douglas. Media Culture. London: Routledge, 1995.

Kennedy, V.S. The Estuary As A Filter. New York: Academic Press, 1986.

Kristeva, Julia. Powers of Horror: An Essay on Abjection. New York: Columbia UP, 1982.

Laclau, Ernesto, and Chantal Mouffe. Hegemony and Socialist Strategy: Towards a Radical Democratic Politics. London: Verso Press, 1985.

Latour, Bruno. We Have Never Been Modern. Cambridge: Harvard UP, 1992.

Leach, Edmund."Anthropological Aspects of Animal Categories and Verbal Abuse," in Lenneberg, E.H. (ed.) New Directions in the Study of Language. Cambridge: MIT Press, 1964.

Leavenworth, Stuart. "Thousands of Fish Die in Neuse Tributary." News & Observer [Raleigh]. 9 Aug. 1995.

---. "Big Kill Threatens to Be One of the State's Worst." News & Observer [Raleigh]. 27 Sept. 1995.

---. "Health Warning Issued For Part of the Neuse." The News & Observer [Raleigh]. 7 Oct. 1995.

---. "Research Team on Trail of Key Pfiesteira Toxin." News & Observer [Raleigh]. 27 Aug. 1997, 3A.

Leavenworth, Stuart and Joby Warrick, "Sold Down the River: A Four Part Series." News & Observer [Raleigh] 3-9 March 1996.

Lembke, Janet. "Proteus of the Neuse." Brightleaf Review Sept.-Oct. 1997.

Lykke, Nina. "Between Monsters, Goddesses and Cyborgs: Feminist Confrontations with Science." eds., Nina Lykke and Rosi Braidotti. Between Monsters, Goddesses and Cyborgs: Feminist Confrontations with Science, Medicine, and Cyberspace. London: Zed Books, 1996. 13-29.

McDonald, Kim A. "Bizarre 'Cell from Hell' Continues to Confound Scientists." Chronical of Higher Education 9 October 1998: A17.

Maguire, John. "The Tears Inside the Stone: Reflections on the Ecology of Fear." eds. Scott Lash, Bronislav Szerszynski, and Brian Wynne. Risk, Environment & Modernity. Thousand Oaks: SAGE Publications, 1996. 169-188.

Massumi, Brian. Everywhere You Want to Be: Introduction to Fear." Ed., Brian Massumi. The Politics of Everyday Fear. Minneapolis: U of Minnesota P, 1993. 3-38.

Microscopy U.K. "The Cell From Hell! Pfiesteria piscicida." Micscape Magazine http://www.microscopy-uk.org.uk/mag/art97b/hell.html.

Mlot, Christine. "Unraveling A Fish Killer's Toxic Ways." Science News 152 (1997): 149.

Moeller, Susan. Compassion Fatigue: How the Media Sell Disease, Famine, War and Death. London: Routledge, 1999.

Mooneyham, Scott."Cell From Hell Sparks Row: Ecologist and Health Officials Clash Over a Micro-organism That Massacres Fish and May Harm Humans." Toronto Star 4 May 1997, Final Ed., F8.

Morison, Carole."The Cell From Hell and Poultry Farmers: Do They Have Anything in Common?" National Contract Poultry Growers Association Website http://www.web-span.com/pga.

Mulvaney, Kieran. "Watch Out for Killer Algae: Years of Dumping Hog Wastes Into North Carolina Rivers Has Created A Monster." E Magazine: The Environmental Magazine 7(1996):15.

---. "Nurturing a Waterways Threat." News & Observer [Raleigh]. 9 Sept. 1997.

Nikiforuk, Andrew. The Fourth Horseman: A short history of epidemics, plagues, and other scourges. London: Cambridge UP, 1992.

Paerl, Hans W., and James L. Pinckney, et al."Ecosystem responses to internal and watershed organic matter loading: consequences for hypoxia in the eutrophying Neuse River Estuary, North Carolina, USA." Marine Ecology Progress Series Vol. 166 (1998) 17-25.

Paerl, Hans W. "Structure and function of anthropogenically altered microbial communities in coastal waters." Current Opinion in Microbiology 1 (1998) 296-302.

Phillips, Angus. "Maryland Struggles to Find Diagnosis for Ailing River." Washington Post 13 August 1997, Final Ed., D02.

Preston, Robert. The Hot Zone. New York: Anchor Books, 1994.

Ranger, Terence and Paul Slack, eds., Epidemics and Ideas: Essays on the Historical Perception of Pestilence. Cambridge: Cambridge UP, 1990. Intro.

Ross, Andrew. The Chicago Gangster Theory of Life: Nature's Debt to Society. New York: Verso, 1994.

Schama, Simon. Landscape and Memory. New York: Random House, 1995.

"Science's Search for a Tiny Killer." Baltimore Sun 25 July 1997, Final Ed, 20A.

Selingo, Jeff. "Fish-killing Algae." Morning Star [Wilmington, NC]. 17 April 1997, 1B.

Slack, Jennifer Daryl. "The Politics of the Pristine." Topia 2 (Spring 1998)

Soper, Kate. What is Nature? Oxford: Blackwell, 1995.

Berland, Jody and Jennifer Daryl Slack. "On environmental matters." Cultural Studies 8(1994):1-4.

Slovic, Paul. "Perception of Risk." Science 17 April 1987: 236-280.

Smith, Toby. The Myth of Green Marketing:Tending our goats at the edge of apocalypse (Toronto: U of Toronto Press, 1998)

Stallybrass, Peter and Allon White. The Politics and Poetics of Transgression. Ithaca: Cornell UP, 1986.

Sterrenburg, Lee. "Mary Shelley's Monster: Politics and Psyche in *Frankenstein*" in The Endurance of Frankenstein: Essays on Mary Shelley's Novel. ed. George Levine and U.C. Knoepflmacher. Berkeley: UC Press, 1979.

Taussig, Michael. Mimesis and Alterity: A Particular History of the Senses. London: Routledge, 1993.

Taylor, John. Body Horror: Photojournalism, Catastrophe and War. New York: NYU Press, 1998.

Vidler, Anthony. The Architectural Uncanny: Essays In the Modern Unhomely. Cambridge: MIT Press, 1992.

Warrick, Joby and Stuart Leavenworth."Who will rescue the ravaged river?" News & Observer [Raleigh]. 9 March 1996.

Warrick, Joby. "The Feeding Frenzy of a Morphing 'Cell From Hell." Washington Post, June 9, 1997, Monday, Final Edition.

White, Hayden. Tropics of Discourse: Essays in Cultural Criticism. Baltimore: Johns Hopkins Press, 1978.

White, T.H. The Bestiary: A Book of Beasts. New York: G.P. Putnam's Sons, 1954.

Williams, Raymond. Forward. Languages of Nature: Critical Essays on Science and Literature. Ed. Ludmilla Jordanova. London: Free Association Books, 1986. 9-14.

Zinsser, Hans. Rats, Lice, and History: A Chronicle of Pestilence and Plagues. New York: Little, Brown and Company, Inc., 1963.

Zizek, Slavoj. Looking Awry: An Introduction to Jacques Lacan Through Popular Culture. Cambridge: MIT Press, 1997.

Bridgeport National
Bindery, Inc.
OCT. 1999